Chemical Week

March 14, 1953

There's more to tariffs than high or low; outdated rules vex chemical makers . . . . . p. 23

Wool Researcher Cassie pushes basic studies to buttress natural fiber's future . . . . . p. 32

. . . And here's what wool's up against: acrylic makers unleash super sales drive . . . . . p. 44

Chemical firms vie to supply germicides for fast-growing output of "deodorant" soaps . p. 52

Dow's Boundy: "Industry must re-examine, re-evaluate air pollution, plan better control" . . . . p. 89

A McGRAW-HILL PUBLICATION

GOING PLACES *in plastics*

Latest wrinkle in sports cars is a plastic body that *won't* wrinkle. And while it may be some time before this development catches up with the family car, nevertheless it demonstrates the ingenuity of the manufacturers and fabricators of plastics.

Paralleling the rise in the use of plastics is the consumption of chemicals needed for their manufacture. Among plastics and resins producers, Mathieson is widely recognized as a dependable source of such essential raw materials as: caustic soda, liquid chlorine, ammonia, ethylene oxide, ethylene glycol, diethylene and triethylene glycols and ethylene dichloride.

In many industries, Mathieson's multi-plant facilities producing top-quality inorganic, organic and agricultural chemicals have proved of definite benefit to the consumer. You'll find you can buy chemicals to better advantage—at any time—by consulting with Mathieson.

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caustic soda • soda ash • liquid chlorine • sulphur • sulphuric acid • bicarbonate of soda • ammonia • sodium nitrate • nitric acid • hydrazine sodium methylate • sodium chlorite • hypochlorite products • dry ice and carbonic gas • ammonium sulphate • ethylene derivatives • methanol

Chemical Week

Volume 72 • March 14, 1953 • Number 11

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Saybolt Melting Point, °F.	Saybolt @ 210°F. Viscosity	2" Cell Color	A.S.T.M. Penetration
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116/120	67/72	35Y 6.5R	175/220
116/120	67/72	35Y 10.5R	175/220
116/120	70/75	35Y 20/30R	175/220
125/135	100/105	Dark Green	110/150
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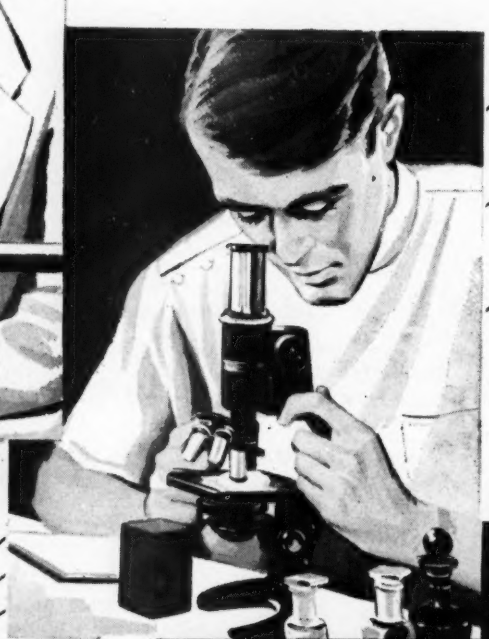

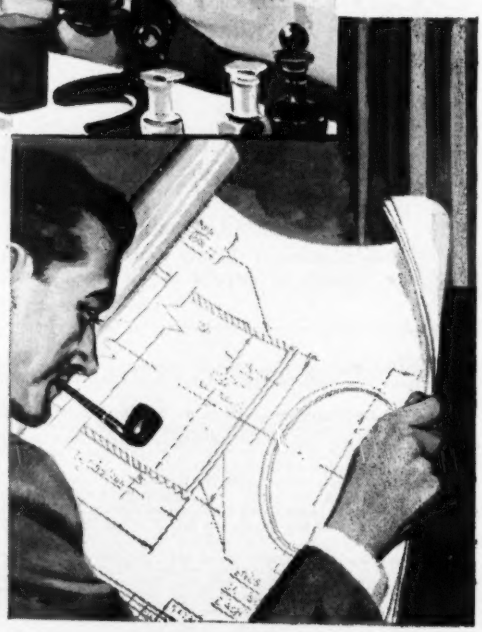

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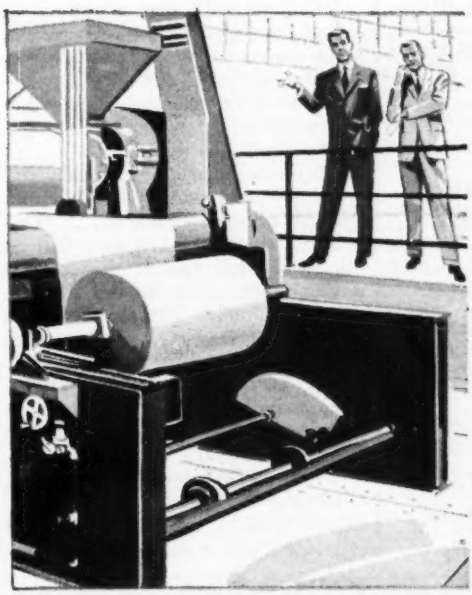

The Firestone EXON line of resins offers many valuable properties to industrial manufacturers. In numerous applications, these resins can improve your product while they cut production costs.

In addition, to help you utilize EXON resins to your fullest advantage, the Firestone Chemical Sales Division makes the following technical services available to you:

1. The assistance of highly trained plastics experts who will be glad to help you design compounds based on EXON materials for specific applications.

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a. Test *physical properties* such as Elongation, Tensile Strength, Tear and Impact Resistance, Stiffness and Thermal properties.

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c. Test *aging properties*, Weathering, Light Stability, Retention of Color and Physical Properties.

d. Conduct *Specific Application Tests.*

3. Consultation with Firestone's Technical Service for information on processing problems, product and process development.

In short, consult Firestone *whenever* you have a question or problem on which you would like assistance.

Find out how Firestone EXON *combined with Firestone's Technical Service can help you produce a better product at a lower cost. Write or call:*

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AMERICAN POLYMER

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POLYVINYL ACETATE EMULSIONS

Broadest range commercially available . . . 10 types to select from . . . viscosities from 200 to 20,000 cps . . . concentrations to 60% . . . clear, water-resistant, tough films . . . serve as bases for adhesives, textile finishes, protective coatings, saturants . . . Bulletin P-16.

POLYVINYL ACETATE SOLUTIONS

Solution polymers of vinyl acetate in acetone, toluol, alcohols and other solvents . . . various molecular weight grades . . . clear, water-white solutions forming tough, waterproof, non-yellowing, non-oxidizing films . . . bases for adhesives, coatings, saturants, hot melts, sizings . . . Bulletin P-15.

STYRENE-BUTADIENE LATICES

Complete range of butadiene-styrene copolymers from 100% butadiene to 100% styrene . . . and metal ion resistant types . . . recommended for paper coatings, water paints, textile finishing, paper saturation, adhesive bases . . . Bulletin P-24, P-29.

ACRYLIC EMULSIONS

Series of acrylic copolymer emulsions which deposit clear, tough flexible films with outstanding ageing characteristics . . . freedom from plasticizer insures constant film properties with no embrittlement, spewing or migration . . . products used for leather finishing, paper coatings and saturation, textile finishing, adhesive bases, protective coatings . . . Bulletins P-4, P-23, P-25, P-28.

ACRYLIC SOLUTIONS

Acrylic polymers and copolymers in various solvents . . . deposit clear, water-white films ranging from tough, hard to soft and rubber-like . . . resistant to water, alkalis, acids, mineral oils . . . low pigment reactivity . . . excellent base for compounding adhesives, protective and functional coatings . . . compatible with wide range of lacquer and paint resins . . . Bulletin P-26.

VINYL COPOLYMER EMULSIONS

Vinyl chloride copolymers yielding tough, elastic films without plasticizers . . . excellent oil and chemical resistance . . . low moisture vapor permeability . . . recommended for leather finishing, paper coating, adhesive bases . . . Bulletins P-32, P-33.

POLYACRYLIC ACID

Available as a 25% aqueous solution . . . base for textile sizes, particularly for nylon and other new synthetic fibers . . . Bulletin P-26.

SODIUM POLYACRYLATE

Stable aqueous solutions used as thickening agents for natural and synthetic latices . . . particularly valuable for adjusting viscosities of water based paints . . . Bulletin P-27.

POLYSTYRENE LATICES

Available in plasticized and unplasticized grades . . . for detackifying rubber latices . . . dulling agent in textile finishing . . . base for adhesives, water paints, rug backing compounds . . . Bulletins P-19, P-24.

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General Offices: 103 FOSTER STREET, PEABODY, MASSACHUSETTS

OPINION....

Burning Ears

To THE EDITOR: Take all the critical, carping letters you have ever received and bundle them up . . . label them as mash notes. That's what you would do with them if you ever heard our local radio commentator, Thomas McCarthy, and his anti-fluoridation tirades . . .

What he says about CW would make your ears burn . . .

A. R. KINSTON
Cincinnati, Ohio

Facts vs. Fears

To THE EDITOR: Cincinnati also is in a "fear *vs.* facts" squabble over fluoridation. . . .

You may be interested in the enclosed newspaper clippings. . . .

J. R. HARRINGTON
Asst. Branch Mgr.
Phosphate Division
Monsanto Chemical Co.
Cincinnati, Ohio.

Thanks, Reader Harrington. An editorial in the Cincinnati Enquirer says this about newscaster Thomas McCarthy of station WKRC (who has, incidentally, been "quoting" CW rather wildly):

"We have had a demonstration . . . of how much harm one newscaster can do in a community . . . create distrust of our public health authorities by misrepresenting the effects of fluoridation of [our] water . . . scheduled to begin on Sunday.

"By misleading statements delivered in highly dramatic style [he] has aroused widespread fears. . . . This is by no means the first time that he has set himself against the community's welfare, thus drawing momentary attention to himself. But it is perhaps the least savory of his adventures. . . .

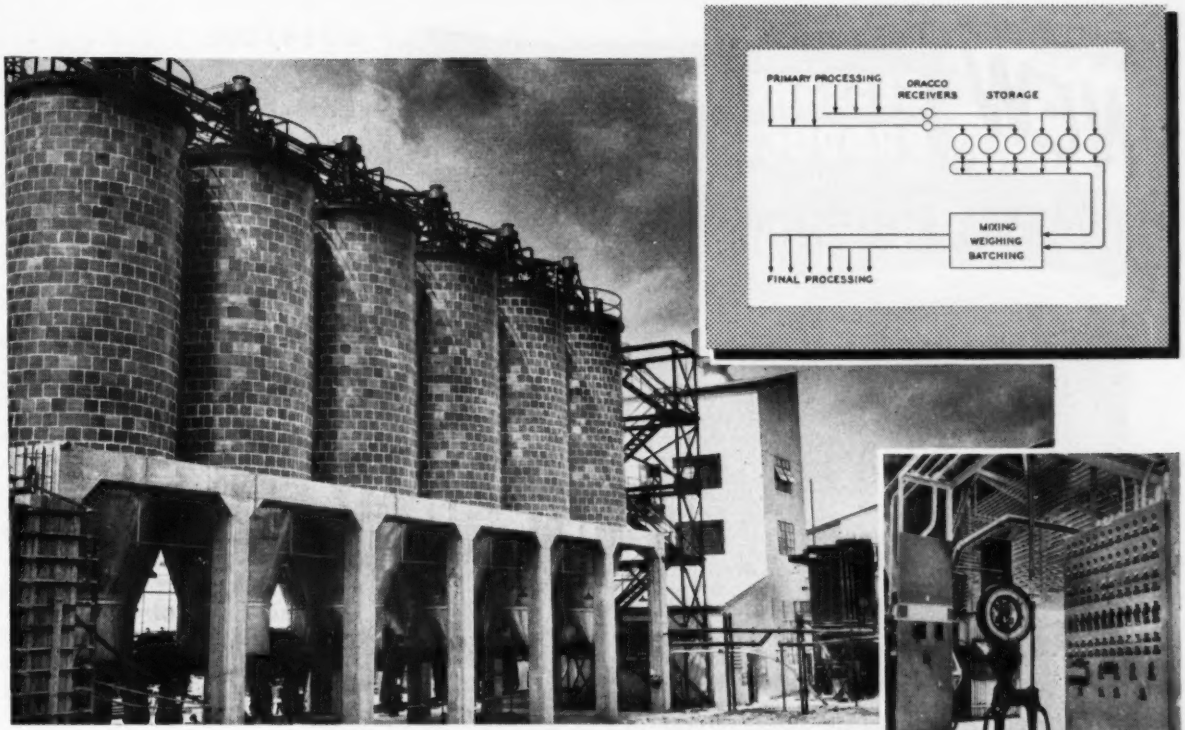
"The pity is that the radio station permits the broadcaster to continue in a pattern of 'news reporting' that victimizes the gullible listener."

With tongue obviously in cheek, Columnist Ollie James, opines:

"We have a tempest in a water pitcher . . . one of our local radio com-

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.



Materials flow diagram shows how Dracco "Airstream" system moves materials from primary to final processing with storage en route in silos (above). One man operates system from control panel (right).

Synthetic Fiber Plant Reduces Handling Labor 96%

One man instead of thirty!

That is the remarkable 96% reduction in materials handling labor produced by an automatic Dracco "Airstream" Conveyor at a large synthetic fiber plant. The Dracco system, effectively integrated into the chemical production process, has also improved product quality and uniformity.

This "Airstream" installation moves materials at rates up to 15 tons per hour from primary processing to final processing with intermediate storage en route. Two types of powdered plastic materials are accurately mixed, weighed and batched, assuring less product spoilage and better, more uniform quality.

One man operates the entire system from a single nerve-center control panel. From this point he can maintain precise control over the 3000-foot, dual-line "Airstream" system. Former manual and mechanical handling methods for the same job required thirty men per shift.

This new concept of "Airstream" conveying integrated with the production process is establishing similar records for economy in many plants. To learn how your plant can profit from this modern Dracco technique, write or call Dracco today.

AN "AIRSTREAM" CONVEYOR IN YOUR PLANT MEANS:

Less labor cost with automatic handling

•

Lower material cost thru bulk purchasing

•

Flexible, space-saving, dust-free handling

•

Low maintenance . . . greater safety

DRACCO CORPORATION
4080 East 116th Street · Cleveland 5, Ohio

Technical information on "Bulk Materials Handling with Airstream Conveyors" is presented in Dracco Bulletin 529. Write for your copy today.

DRACCO

Performance Proved

Airstream CONVEYORS · DUST CONTROL EQUIPMENT

Walter R. Meyer, Ph. D.

Dear Reader:

At Enthone's Research Laboratories and at several leading universities, research has been conducted for years on problems in plating, cleaning and metal finishing. Your problems in these fields when submitted to Enthone will receive the attention of skilled, experienced metal finishing chemists. I hope you will let us have the opportunity of serving you. A few of the products of research are mentioned below. Others will be mentioned in future advertisements.

Sincerely,
Walter R. Meyer,
President & Research Director

PRODUCTS FOR CLEANING AND DEOXIDIZING OF METALS

METAL CLEANERS TO REMOVE ORGANIC DIRT

CLEANER 695 — A powerful high current density cleaner for steel used both anodically and cathodically. Also an excellent soak cleaner.

CLEANER 160 — An all-purpose cleaner. Excellent for both anodic and soak cleaning of steel, copper, brass and zinc base die castings.

EMULSION CLEANER 75 — A superior emulsifiable solvent cleaner used extensively for rapid cleaning of all metals at room temperature.

Special Cleaners Are Available For Cleaning Various Metals Such As Zinc, Magnesium, Lead and Brass

AIDS FOR OXIDE REMOVAL AND PICKLING

ACID ADDITION AGENT — A surface active material extensively used in sulphuric and hydrochloric acid pickles to reduce fuming, to give better wetting and to promote better pickling.

COMPOUND NR-31 — A slightly alkaline material added to water to prevent rusting of steel during drying and to protect steel during storage. Non-oily.

COMPOUND NR-37 — A material added to cold or hot water rinses to prevent rusting during drying. Leaves no residue.

COMPOUND 42 — A solvent acid cleaner for rapid removal of oil, rust, and oxide from steel, zinc, aluminum and other metals to prepare them for painting or organic finishing.

COMPOUND 134 — An alkaline material for rapid, electrolytic removal of rust and scale on steel, cast iron and malleable iron. Used at room temperature. No smut or attack on basis metal.

DESCALER 2A — A free-flowing acid mixture for pickling of iron and steel that overcomes the hazards of handling strong acids.

INHIBITOR 8 — An all-purpose inhibitor for acids including sulphuric and hydrochloric acid pickles to reduce fuming, to give better wetting and to promote better pickling.

WATER DISPLACING LIQUIDS — Several liquids are available for shedding water from metals for rapid, stainfree, spotless drying. Used after cleaning, pickling, plating and phosphating.

METAL FINISHING PROCESSES

ENTHONE
INCORPORATED
442 ELM STREET
NEW HAVEN, CONNECTICUT

ELECTROPLATING CHEMICALS

OPINION. . . . . .

mentators, Tom McCarthy, asserts [fluoridation] is dangerous. And we reckon it would be, if you drank more than 5,000 gallons a day. . . .

". . . There is a lot in our water already . . . besides two parts hydrogen and one part oxygen . . . there's also half a part chlorine, half a part of catfish sweat . . . our space is limited . . . we might have to crowbar the drops to get fluoride in.

"We suggest that a committee be appointed to determine whether there is any room in our water for anything else.

" . . . We would hate to have one more thing prove to be the straw that breaks the camel's back . . . we would dread to have our water break down completely and just lie there moaning in the city reservoirs."—ED.

Comma Scuttler

TO THE EDITOR: You are one of the principal culprits in fostering the substitution of a comma for "and" in print. The English language is still live & should modify with time. I am a staunch advocate of brevity & abbreviations. But the saving you gain in paper & linotypers' wages by the above usage is a mess of pottage. The upcoming chemical fraternity will begin talking in phrases & develop speech impediments.

A Mr. Fowler (who at one time held some influence on English usage) would be horrified at your practice, but he has always used the "and" symbol.

Why can't you?

JOHN GRISWOLD
General Chemical Division
New York, N.Y.

Good point, Reader Griswold. Perhaps it is in striving to write pointedly & tersely & clearly that we are underanded, over-commaed.—ED.

More Jobs, More Pay

TO THE EDITOR: Your news article "More Women in More Jobs with More Confidence" has received many favorable comments from members of the Society of Women Engineers.

It is highly informative . . . accurately pointed out the many problems encompassed by women chemists and women engineers working toward the attainment of full professional status in the chemical industry.

While we have found examples of the lack of opportunity for women engineers in the chemical industry, even after five or six years of outstanding work . . . these are in the

"I could see the corpsman kneeling over me. The blood plasma was running down through a tube into my arm and he said everything was going to be O.K. I was walking across an enemy mine field in Seoul when one exploded and a piece of shrapnel caught me in the leg.

" 'Got enough of that stuff?' I asked him, pointing to the blood. 'I guess we never have enough,' he said, 'but you can thank *somebody* for this pint.'

"How do you thank 'somebody' for blood? For saving your life? When I got back home, I discovered the answer at my local blood donor center. There's only *one* way to say thanks—by giving some of your own blood."

"How do you thank 'somebody' for Blood?"

Yes, all kinds of people give blood—for all kinds of reasons. But whatever *your* reason for giving blood, this you can be sure of: Whether your blood goes to a combat area, a local hospital, or for Civil Defense needs—this priceless, painless gift will some day save an American life!

Business Executives!
✓Check These Questions!

If you can answer "yes" to most of them, you—and your company—are doing a needed job for the National Blood Program.

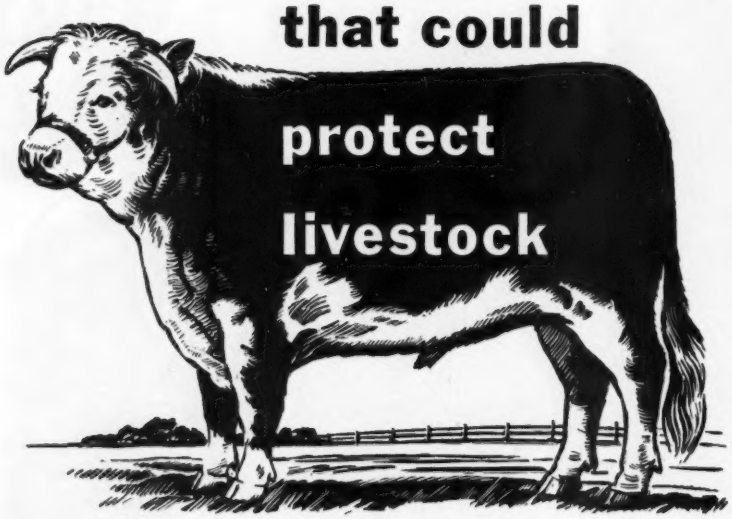
- ☐ Have you given your employees time off to make blood donations?
- ☐ Do you have a Blood Donor Honor Roll in your company?
- ☐ Have you set up a list of volunteers so that efficient plans can be made for scheduling donors?
- ☐ Have you arranged to have a Bloodmobile make regular visits?
- ☐ Has your management endorsed the local Blood Donor Program?
- ☐ Have you informed employees of your company's plan of co-operation?
- ☐ Was this information given through Plant Bulletin or House Magazine?
- ☐ Has your company given any recognition to donors?
- ☐ Have you conducted a Donor Pledge Campaign in your company?

Remember, as long as a *single* pint of blood may mean the difference between life and death for *any* American . . . the need for blood is *urgent!*

Give Blood Now—Call Your Red Cross Today!

National Blood Program

the insecticide that could protect livestock



—but couldn't be shipped

STEEL PACKAGING PROBLEM SOLVED BY INLAND LINING RESEARCH

When Chicago agricultural insecticide maker, William Cooper & Nephews, Inc., developed the formula for Cooper-Tox, every test showed it to be a superior livestock insecticide. It was a highly effective "bug-killer" but it had one drawback. When the powerful Toxaphene in Cooper-Tox came in contact with the steel in ordinary five-gallon pails, there was trouble. Not only did the steel react to contaminate the product but the product, in time, caused the pail to leak. Tin plating was not effective. Glass was too fragile and expensive for this size container.

Working with Cooper chemists, Inland's lining research department came up with a special steel container lining—IC-25. This lining proved so resistant to Toxaphene that Inland's economical steel containers, both pails and drums, now carry Cooper-Tox safely to users everywhere. The company says, "We've tried them all and Inland's is the best and most economical lining we could find!"

If you have products which are difficult to package and ship, ask Inland to help you find the right kind of lined steel container. Our long experience in lining research may open up new markets for you as it has for others.

INLAND
protection-eered
CONTAINERS

Inland Steel Container division of
INLAND STEEL COMPANY
6532 South Menard Avenue • Chicago 38, Illinois

OPINION. . . . . .

minority and in general a feeling of optimism prevails.

Generally speaking, we agree that greater opportunities are to be found with smaller firms in the chemical industry rather than larger firms. However, there are some notable exceptions.

It must be pointed out, though, that the attainment of full professional status for women chemists and engineers in the chemical industry and in other industries is only one small part of the overall sociological growth of the position of women in America.

Bearing this fact in mind, we feel that women engineers have made tremendous strides toward the attainment of full professional status; i.e., equal opportunity for advancement with equal pay with men.

BERNICE HARRIS
Chairman
Society of Women Engineers
New York, N.Y.

DATES AHEAD . .

Nat'l Electrical Mfrs. Assn., Edgewater Beach Hotel, Chicago, Ill., March 9-12.

Nat'l Assn. of Corrosion Engineers, 1953 conference, Chicago, Ill., March 16-20.

Amer. Trade Assn. Executives, Spring meeting, Mayflower Hotel, Washington, D.C., March 19-20.

Magnesium Assn., first Internat'l Magnesium Exposition, National Guard Armory, Washington, D.C., March 31-April 2.

Modern Sanitation and Safety Assn., Sanitation Show, Terrace Room, Mosque Bldg., Newark, N.J., April 14-15.

Packaging Machinery Mfrs. Institute, semi-annual meeting, Sheraton Hotel, Chicago, Ill., April 18-19.

Packaging Institute, annual spring meeting, Furniture Club, Chicago, Ill., April 20.

Assn. Consulting Chemist and Chemical Engineers, Inc., symposium, Hotel Belmont Plaza, New York, N.Y., April 21.

Penna. Mfg. Confectioners' Assn., seventh annual production conference, Lehigh University, Bethlehem, Pa., April 23-24.

American Zinc Institute, Thirty-fifth annual meeting, Hotel Statler, St. Louis, Mo., April 27-28.

Chem. Eng. Div. of Chemical Institute of Canada and Amer. Institute of Chem. Engrs., joint meeting, Toronto, Canada, April 27-29.

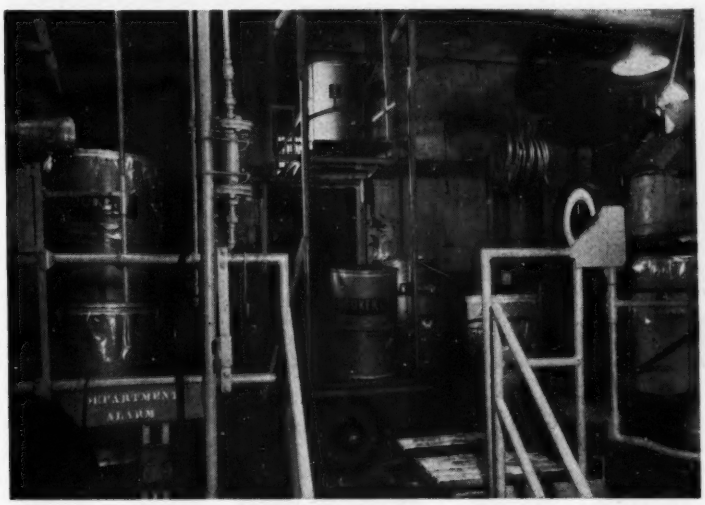
Hooker Chemical Guide
(ONE OF A SERIES)
USE this handy reference to save time in selecting high quality chemicals.

HOOKER Monochloroacetic Acid

Synonyms: Chloroacetic Acid, Chloroethanoic Acid
Formula: $CH_2ClCOOH$
Appearance: White crystalline material
Molecular Weight: 94.5

TYPICAL PROPERTIES

Freezing Point	61.6° C
Boiling Point	189° C



Modern packaging facilities at Hooker help to protect the quality of monochloroacetic acid.

USES

Intermediate: in manufacture of carboxymethylcellulose, 2, 4-dichlorophenoxyacetic acid, cyanoacetate, indigoid dyes, thioglycolic acid, glycine (aminoacetic acid) and other commercial chemicals.

• You can count on the quality of Hooker Monochloroacetic Acid. Every step in its manufacture is strictly controlled to maintain high standards of uniformity.

The product is packaged as a fine flake material, ready for use.

Deliveries are scheduled with care to meet your production needs and keep undesired inventory at a minimum.

Competent technical service men assist your plant personnel in safe handling and proper use of monochloroacetic acid and other Hooker products.

Finally, Hooker research and development groups are constantly at work improving production methods, and finding ways to make monochloroacetic acid and other Hooker Chemicals more useful to you.

For full information on Hooker Chemicals, write for General Products List No. 100. Address your request to Hooker Electrochemical Company, 15 Forty-Seventh Street, Niagara Falls, N. Y.

From the Salt of the Earth

HOOKER ELECTROCHEMICAL COMPANY
NIAGARA FALLS • TACOMA • NEW YORK • CHICAGO • LOS ANGELES

HOOKER CHEMICALS

Sodium Polyphos
(SODIUM HEXAMETAPHOSPHATE)
(SODIUM TETRAPHOSPHATE)

Chlorinated Trisodium Phosphate

Tetrasodium Pyro Phosphate

Trisodium Phosphate
CRYSTALLINE MONOHYDRATE

Sodium

Sodium Tripoly Phosphate

BLOCKSON

BLOCKSON CHEMICAL COMPANY
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Phosphates

Disodium Phosphate
ANHYDROUS CRYSTALLINE

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also major producers of:
SODIUM SILICOFLUORIDE
SODIUM FLUORIDE
HYGRADE FERTILIZER

NEWSLETTER

It's harder to do business in Washington now than in the payroll-fat days of the previous Administration. The laudable effort to trim expenses, together with the inevitable changes in set-up accompanying a new top team, evoked this comment from one Defense Production Administration staffer: "The set-up is so changed and so many cuts have been made, we hardly have anyone left to answer the 'phones."

As a result of the new atmosphere, industry may be permitted to do more on its own, be less dependent on government. Indicative is the action of the Commerce Department's Office of International Trade. On recommendation of its Antibiotics and Sulfa Drugs Export Advisory Committee, it is appointing a task group from industry to help set up a licensing program for sulfas and antibiotics. Object is to unsnarl the tangle caused recently when OIT dragged its heels on issuing export permits because it discovered that the drugs were being transshipped to Iron Curtain countries.

OIT then took stock, resumed issuing licenses on a new basis, which failed to satisfy industry. The new task group will likely consider the whole problem, "including," says OIT, "the need for distinguishing among different classes of antibiotics."

While one patent infringement suit (Houdry vs. Socony-Vacuum) is just getting under way (CW Newsletter, March 7), another one, in the courts for two years, is nearing the finish line. After 100 days and 15,000 pages of testimony, Federal Judge Richard S. Rodney, Wilmington, Del., is working on his decision in the civil suit of William Whitman Co. against Universal Oil Products over patents on an oil-cracking process.

Because some of the patents issued to Universal Oil's research director, Gustav Egloff, have been declared invalid, Whitman wants the court to order repayment by Universal of the royalties it paid to use the process. Whitman seeks a judgment of $1.4 million, which includes royalty refund together with interest.

A red-hot coal has been added by Scottish researchers to the burning chlorophyll controversy. A University of Glasgow team headed by John Brocklehurst reports that after testing "nature's magic ingredient" against mercaptans, skunks, perspiration, chopped onions, garlic and various brands of scent, it can find no deodorant properties whatsoever.

Subjected to various tests were sodium and copper chlorophyllins, a crude mixture intended for coloring, and a formulation sold for use in wick-type air deodorants. None was effective, and in a final test Brocklehurst and his colleagues swallowed 25 times the number of proprietary chlorophyll tablets normally recommended—without avail.

Commented the British Medical Journal, which published the research report: "It is evident that the wave of credulity which has swept the United States has not overwhelmed everyone and it is to be hoped that it will not overwhelm too many in Britain."

And said the researchers themselves of their tests: "It would be useful if a large number of doctors carried out these simple tests."

Problems facing the Food and Drug Administration and the U. S. Public Health Service were aired last week before the House's Interstate and Foreign Commerce Committee by Federal Security Administratrix Hobby, FDA Commissioner Crawford, Deputy Commissioner Larrick, and USPHS's Surgeon General Scheele. It was part of Committee Chairman Wolverton's program to meet and talk with heads of the various Federal agencies over which his group has jurisdiction.

You can look for solid benefits from Wolverton's approach. Close liaison between Congressmen, who write the laws, and agency heads, who have to administer them, will provide more reasonable, workable legislation in these fields of interest to the chemical process industries.

First thing plumped for in this series of conferences: restoration of FDA's plant inspection powers by passage of H.R. 2769 and S. 835 (CW, Newsletter, Feb. 28).

Ethylene and polyethylene are headline news this week. Gulf Oil just finished its initial ethylene unit at Port Arthur, Tex., said to be the largest in the world (2½ billion cu. ft./yr.), and is now considering construction of a second unit as large as the first.

Meanwhile, several firms—Spencer Chemical, National Petrochemical, American Petrochemical, Jefferson Chemical—were in various stages between uncertainty and certainty about polyethylene production. National Petrochemical, on one hand, has made up its mind, will produce 50 million lbs./yr. at Tuscola, Ill., under Imperial Chemical Industries patents, hopes to be in production the first half of 1955. Jefferson, on the other hand, is still "considering it closely." The other firms fall in between.

If all present plans were to materialize, new capacity together with facilities now in use or underway by Du Pont and Union Carbide would add up to well over 500 million lbs./yr.—well above projected 1955 demand of 350 million lbs. It may be that market researchers have reason to expect higher-than-foreseen demand, or that several firms got the same idea at the same time. If the latter is true, some potential starters may scratch; but in any case, there'll be lots more polyethylene.

Lower oil production has meant lower revenue for the state of Texas, and legislators there are worried about it. Latest proposal, by Rep. Robert Patten, Jasper, is to slap a 2¢ levy on every 1,000 cu. ft. of natural gas produced. His proposal would bring in $80 million/yr.

Perennial headache of the steel industry is disposal of used pickle liquor. Now Blaw-Knox Co.'s Chemical Plants Div. has come up with a process, is trying to sell it to steel fabricators.

The liquor is first concentrated by evaporation, then treated with hydrogen chloride to convert ferrous sulfate to ferrous chloride, which is centrifuged out of the liquid (regenerated sulfuric acid that is returned to the pickling line) and roasted to iron oxide. Hydrogen chloride is regenerated and recycled. A unit to treat liquor for a fabricator using 10,000 tons of sulfuric acid a year would cost about $500,000.

Further process news is the issuance of patents to Swift & Co. covering catalytic methods of modifying the crystal structure of lard—making it more like hydrogenated vegetable fats. Catalysts are metal salts, alcoholates, hydroxides, hydrides and amides. An Armour & Co. patent covers a substantially similar process using metal alcoholates, so it's conceivable that the question of priority may be raised.

. . . The Editors

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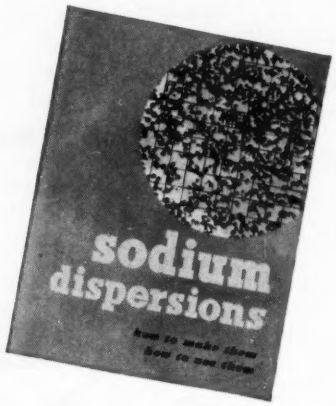

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BUSINESS & INDUSTRY . . . .

Right or Courtesy?

Hard on the heels of the Food and Drug Administration's annual report (329 cases sent to court, 108 drug violations, 5 druggists in jail) has come a dispute over HR2769, an FDA-endorsed bill to restore plant inspection powers.

The request by some industries, including proprietary drug makers and food canners, for a clause to limit the agency's inspection powers has thrown a monkey-wrench into FDA's machinery. FDA Chairman Charles Crawford wants a general law that will give his inspectors broad authority to get "any information relative and pertinent to industry compliance with the law."

Even though many industries are on Crawford's side, it looks as if the opposition may be able to force a restrictive clause into the law, which would leave the limits of FDA inspection up to court decisions.

The only specific measure that FDA is asking for this session, the factory inspection bill would, says Crawford, solve one of the many problems facing FDA. A more effective bill, he argues, would enable more effective use of the limited funds available for enforcement.

In Crawford's opinion, there's also a great need for enlarging the funds and staff at FDA's disposal; for supporting evidence he points to the yearly report. Cancer nostrums, mislabeled products and illegal prescription sales were the violations requiring the most policing. In the drug and device field, 329 cases were sent to the Federal courts, the safety of 304 new drugs prior to marketing was passed upon, and all manufactured lots of insulin and of five antibiotic drugs were tested and certified.

In the case of quacks and nostrums, it was pointed out that FDA could step in only in cases where state lines were crossed. The fact that most dealers relied on out-of-state "patients" put many cases under the jurisdiction of the Administration.

If a limited factory inspection law is passed, FDA again will have to face the long-term court procedures incurred in most cases by the necessity for including repetitive evidence. One suggestion to be considered in the future: a bureau set up to collect accepted factual information and thereby eliminate the long process of wrangling over just exactly what ingredients are harmful.

More Money Wanted: In the event the factory inspection law is passed according to FDA's wishes, only one of many hurdles will have been surmounted. Inadequate supplies of men, finances and facilities, warns Crawford, are drawbacks yet to be resolved. The number of violations unearthed in the past fiscal year, he claims, is indicative of the need for immediate consideration and solving of the many legislative problems facing FDA. But, "the urgent leglislative need is the restoration of factory inspection as a right of the people rather than a courtesy of the factory manager," Crawford declares.

The Eighty-Third Congress will have to act on the bill and must decide between an unlimited law as favored by FDA, or the restrictive clause supported by the opposition. Already requested in President Eisenhower's message to Congress and introduced by the chairmen of House and Senate interstate and foreign commerce committees, the factory inspection legislation will be the first step in deciding the full extent of FDA's jurisdictions.

Purifying the Smog

One stinging ingredient is being taken out of the much maligned mixture of fumes and gases in the atmosphere of Pittsburgh, world-renowned as "the smoky city."

When three residents complained that acid fumes from a nearby chrome-plating plant had been pitting their windows, damaging their woodwork and irritating their lungs and throats, Judge John Drew of Common Pleas Court ordered American Industrial Chromium Co. to shield its exhaust stack so chromic acid won't be emitted.

Company President George J. Lemak told the court that since the suit was filed, he has installed a complicated and costly air-washing device that eliminates acid from the smoke. The firm chrome-plates secret defense mechanisms, and is expanding into a new building.

Timely Door-Bolting

While the horse is still in the barn, the National Production Authority has started blueprinting plans for an extra-strong bolt in the form of a three-point post-attack program.

The plan, initially presented to the Chemical Industry Advisory Committee, will be promoted in the chemical industry by the Manufacturing Chemists' Assn., which is now preparing nominations to submit to NPA. The three broad concepts designed by NPA were (1) preventive measures, aimed at staving off attack damage wherever possible; (2) supply measures, concentrating on reserve stocks and moving of undamaged goods; and (3) reconstruction measures, emphasizing advance planning on construction and engineering.

The chief preventive measure—geographic dispersion—would alleviate attack vulnerability. The government's role in this case: grant certificates of necessity for rapid amortization to plants built outside of thickly settled areas. Main drawback: dispersion should not alone be expected to override the basic cost factors that might mean the difference between profit and loss to the individual manufacturer.

On supply measures, the Office of Defense Mobilization feels that if we wait until after possible attack, valuable time will be lost. They suggest having government controls ready to distribute materials.

Blueprints of duplicate plants and equipment, or beforehand procurement and storage, would restore vital facilities that likely would be destroyed.

That's what the government planners think. The MCA's task force, the job of which would probably remain purely promotional, will have to publicize the need for post-attack planning. Industry itself will have to take on the bulk of execution. The government doesn't want to scaremonger, but at the same time officials feel that to be ready for any eventuality is just plain common sense.

West German Chemical Exports to Central

Products	Argentina		Brazil		Chile		Colombia	
	1951	1952 (1st half)	1951	1952 (1st half)	1951	1952 (1st half)	1951	1952 (1st half)
Inorganic and heavy chem.	14,398	1,766	20,675	7,746	1,738	583	3,777	834
Nitrogen Fertilizer	377	719	2,552	268	2	2	860	—
Phosphorus and Potash Fertilizer	15	—	1,289	343	—	—	259	—
Mixed and other Fertilizers	—	—	—	270	—	—	—	299
Coal-tar paints and Dyes	10,898	142	7,223	1,495	3,588	584	3,494	299
Vegetable and Animal Paints and Dyes	—	—	—	64	—	6	—	—
Mineral Paints and Dyes	3,653	212	7,825	3,676	1,594	247	1,704	222
Paint products	213	100	68	28	694	37	1,579	211
Varnish, Lacquer, Putty	63	15	124	156	80	47	296	17
Explosives, Inflammables	48	124	188	11	92	—	64	447
Ferro-alloys	3	—	—	—	—	—	—	—
Soaps and Detergents	47	—	217	150	70	42	97	14
Pharmaceuticals	10,064	788	9,596	2,653	1,036	288	1,673	890
Essential Oils	378	23	333	308	89	12	104	17
Pers. Hygiene Products	8	—	46	91	14	5	7	7
Glue and Gelatine	242	—	43	36	9	20	182	18
Tanning Extracts	400	2	179	122	23	30	87	235
Rayon	1,106	—	183	121	493	14	1,351	1
Cellulose Wool	—	—	267	—	—	—	910	153
Plastics	4,850	2,800	5,215	2,534	128	167	52	59
Other Synthetics	68	—	1,182	286	279	92	412	25
Photochemical Products	2,261	181	2,378	1,544	109	72	725	62
Wax, Stearine, and Lubricating Products	65	18	13	55	36	80	8	23
Tar Products	420	36	94	7	32	—	79	5
Other Chemical Products	5,693	703	5,143	1,264	1,561	186	2,247	202
TOTAL:	55,271	7,639	64,833	23,228	11,667	2,514	19,967	4,040

Germany Faces Latin Hurdles

In attempting to scale back to its prewar position of prominence in chemical exports to South America, Germany has met stiff obstacles because of economic policies pursued by Brazil and Argentina. Germany's outstanding gains registered in 1951 were all but smothered by several serious drops in 1952.

Alarmed by the slackened pace, German chemical association officials subjected their own efforts to careful scrutiny. But finding no serious defection at home, they charge the drop last year to conditions peculiar to certain South American countries — unhappily their best customers.

Behind the Setback: Basically, the Germans find three factors involved in their immediate problem of regaining lost ground:

• In Argentina, where Germany's chemical exports suffered most drastically in 1952, officials feel the collapse was caused primarily by President Peron's "drastic industrial policy."

"Countries like Argentina neglected and ruined their agriculture in order to build up their industries," according to one prominent German chemical association member. "It's a vicious circle: Argentina last year was unable to export as many agricultural commodities as formerly. As a consequence, the country didn't earn enough money to buy both capital goods for her growing industries and consumer goods, which include chemicals. There just wasn't enough money around for both import categories, and chemicals bore the brunt of cutbacks in Argentine imports. Last year, Argentina even had to import wheat and linseed oil—formerly export items."

Hard hit among German chemical producers as a result were some of the basic material producers, among them the I. G. Farben successor company, Farbwerke Hoechst, near Frankfurt.

• Secondly, German chemical experts feel that their industry has, in a roundabout way, fallen victim to an "anti-American" policy on the part of some South American nations. They sense that South American efforts aimed at setting up large national industries are aimed against U. S. dominance in these areas. And the Germans have, as a consequence, been penalized by South American import cutbacks.

• A final factor was the number of payment difficulties that arose during the past year. Germany, like the U. S., had to block exports to some of the S. A. nations, since the "swing," or credit margins allowed under the terms of bilateral trade agreements with those "offset account" countries, had far exceeded its normal rate.

In contrast, German chemical ex-

and South America (in 1000 Deutsche Mark [=$238.06])

Peru		Uraguay		Venezuela		All Other South American Countries*		Mexico, Cuba, West Indies and All Central American Countries**	
1951	1952 (1st half)	1951	1952 (1st half)	1951	1952 (1st half)	1951	1952 (1st half)	1951	1952 (1st half)
,732	378	1,513	383	767	501	833	438	5,081	3,120
611	261	4	101	114	3	15	1	7,944	120
33	—	—	—	—	1	17	4	479	1,741
—	6	—	—	—	22	—	37	—	2,109
508	227	903	16	279	100	747	234	2,733	942
—	3	—	1	—	2	—	3	—	2
481	293	686	186	710	296	315	194	1,468	652
609	183	530	267	375	191	493	477	1,368	562
50	57	26	29	81	94	107	15	199	104
44	38	113	33	43	31	21	8	62	83
—	—	—	—	—	—	—	1	—	—
195	13	60	10	116	62	45	85	107	57
,804	537	584	236	1,553	1,089	688	374	2,590	1,778
36	21	38	—	35	28	33	23	38	45
155	25	16	3	86	83	153	137	221	98
32	15	53	16	171	110	23	9	122	58
88	65	81	—	37	69	56	22	197	47
247	25	1,839	15	312	14	384	164	1,814	33
352	32	1,164	213	785	49	449	378	814	43
378	40	387	22	79	63	36	34	158	98
55	35	94	85	116	79	46	71	508	132
109	150	226	27	322	133	111	137	275	133
12	7	1	—	38	2	2	7	9	16
27	1	9	—	7	12	10	4	40	6
540	237	890	73	523	327	308	271	2,101	1,448
,898	2,649	9,217	1,716	6,539	3,361	4,891	3,126	88,090	13,436

* Includes Boliva, Ecuador, Paraguay, Surinam and British Guiana.
** Includes Costa Rica, El Salvador, Guatamala, Honduras, Nicaragua, Panama, Puerto Rico, Haiti, British Honduras, and Dominican Republic.

ports to the so-called "dollar countries" like Cuba, Venezuela and Mexico continued to climb.

Outlook for '53: Any prediction of German chemical exports for this year must be cautiously optimistic. German manufacturers and exporters will intend to expend every effort to expand their markets in these areas as rapidly as possible. Every sales and distribution device necessary to increase sales will be used; products will be sold in any quantity specified by the buyer; products will be designed and packaged to appeal to local tastes and prejudices; wherever possible, liberal payment conditions will be arranged.

But any major increase in German exports will continue to depend on the payment positions and economic policies pursued by the importing South American countries.

Farbwerke Hoechst hopes that its 1953 exports will revive. But it maintains certain policies in countries like Argentina must first be changed: "Agriculture must cease being the national step-child, so that the nation can again earn enough foreign exchange to buy German chemicals."

In the meantime, it is highly probable that great numbers of German chemical producers will set up their own plants in South America. Again, the payments and foreign exchange positions of many Latin American nations are such that German firms would think twice before investing large sums for the establishment of expensive chemical equipment.

Moreover, the confiscation of German property, patents, trademarks, and names has been a serious brake on the desire of many German firms to re-penetrate South American markets. Not until last month did Argentina, for example, return many of the patents and trademarks to their former German owners.

Most German sales and service organizations in South America before the war were razed. Owners are now doggedly trying to rebuild them—but

Chemical Exports

(In $1,000)

	1938	1949	1950	1951	1952*
Argentina	4,731	99	4,665	10,429	1,779
Brazil	5,879	1,098	4,402	11,664	7,241
Chile	2,076	397	1,437	2,369	1,372
Uraguay	1,022	213	1,237	1,316	562
Venezuela	830	69	625	917	1,016
Colombia	1,505	42	1,922	3,481	1,424
Cuba	512	32	360	434	973
Mexico	2,456	235	952	1,98[illegible]	1,434

* Jan. to Nov. 30, '52.

for the moment they intend to maintain only administrative organizations, restricting capital investment to those functions.

When economic policies in South America are relaxed enough to permit further penetration of chemical markets, German manufacturers will be ready to jump in again to regain their former prominence.

LABOR . . . . . .

Employers' Rights: Tempo of organizing activity in the chemical processing industries still is on the rise, but out of the din of unionizing have arisen three newly enunciated freedoms for employers. The National Labor Relations Board, in upholding a recent plant election, ruled that an employer:

- May express his preference as between two competing unions, and give his reasons for that preference, so long as he doesn't try to use coercion.
- May continue to recognize an incumbent union during a union election campaign.
- May misrepresent facts in an election campaign, if the employes are in a position to judge their source and if the union is aware of any inaccuracy and has a chance to correct it.

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Three-way Tangles: Typical of these complex times are two situations in each of which a chemical company, a union, and a branch of government are involved in a trilateral tussle.

- Shuttling between Arco, Idaho, and Washington, D.C., is a tug-of-war between American Cyanamid and the Oil Workers International Union (CIO), with the Atomic Energy Commission and the Federal Meditation & Conciliation Service nervously trying to avert a strike. The issue is "isolation pay" for OWIU members who live in Idaho Falls and drive 50 miles each day to work at the Arco atomic plant, operated by Cyanamid for the AEC. OWIU contends that its members have to put in 12 hours a day, including travel time each way, to earn eight hours' pay, since Idaho Falls is the only settlement close to the plant.
- The mix-up at Buffalo, N.Y., concerns Durez Plastics & Chemicals, United Electrical Workers (Ind.), and the New York State Supreme Court. In a lawsuit between the company and the union over an arbitration question, the recent death of Supreme Court Justice Raymond A. Knowles resulted in legalistic uncertainty. Before his death, Knowles prepared a memorandum saying that the question of whether the company should accept "multiple arbitration" was of itself "an arbitrable grievance." Company Attorney Michael Catalano says that if the justice's memorandum did not have the force of a court order, it might be necessary to reargue the case before another justice.

DPA's LATEST TAX WRITE-OFF LIST

Company, Location	Product	Amount Certified	% Certified
Metal Hydrides, Inc. Beverly, Mass.	Metallic hydrides	$993,677	75
New Jersey Zinc Co., Palmerton, Pa.	Titanium dioxide	15,000,000	45
Davison Chemical Corp., Nashville, Tenn.	Sulfuric acid	950,000	45
The Pfaudler Co., Elyria, O.	Chemical industry equipment	145,100	55
Columbian Carbon Co., Seminole, Tex.	Sulfur	200,000	70
Wilshire Oil Co., Inc., Norwalk, Calif.	Sulfur	148,000	70
Gates Bros. Inc., Wendell, Ida.	Sulfuric acid	790,000	45
Gates Bros. Inc., Montpelier, Ida.	Phosphatic fertilizers	2,146,156	45

COMPANIES . . . .

Company purchases made news this week:

- Great Lakes Carbon Co. bought a perlite mine at Rosita, Colo., and a perlite mill at Florence, Colo., from Alexander Eng. Div. of Alexander Film Corp., to gain more capacity, greater distribution.
- Pennsylvania Salt Manufacturing Co. purchased 22 acres of land in Portland, Ore., from the Northern Pacific and Spokane, Portland & Seattle Railway Co. adjacent to its present plant. Price: $65,000. Plans call for use of the tract for future expansion.
- Barrett Div., Allied Chemical & Dye Corp., acquired the Greensboro plant of Synvar Southern Corp., comprised of facilities for the manufacture of urea-formaldehyde resins. Present plans call for Barrett to continue manufacturing grades of resins previously supplied by Synvar.
- The Reliance Guano Co. was sold to Southern States Phosphate and Fertilizer Co., Savannah, Ga. Under negotiation for several weeks, the deal has been consummated except for the formal transfer expected to take place sometime in March.

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Union Carbide & Carbon plans to build a multi-story office building in Cleveland, to be completed next year. It will house sales offices of the company's five divisions located in Cleveland. No estimate is as yet available on cost.

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Stocks came in for a share of attention:

- Union Sulphur & Oil Corp. will come into the market next month with a $10-million issue of debentures, while a group of its stockholders offer 101,000 shares of Class A non-voting stock.

The debentures are to carry a sinking fund operative in 1956 and intended to retire 66% of the issue before maturity.

Plans are to use proceeds from the sale of the debentures to pay off $2,268,000 of bank loans and to increase general company funds available for exploration and development purposes.

- Dominion Tar & Chemical Co. will call a special stockholders' meeting some time after April 1 to ratify a four-for-one split of the company's common stock, ratified by directors. A public offering of 100,000 of the present common shares will be made.

EXPANSION . . . .

Super-Phosphate: The F. S. Royster Guano Co., Norfolk, Va., plans construction of a $3-million plant near Mulberry, Fla., to produce triple superphosphate. Annual production capacity will be 70,000 tons.

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Caprolactam: Mathieson Chemical Corp. and American Enka Corp. have revealed joint plans to build a plant at Morgantown, W.Va., to produce caprolactam, a raw material used in the production of nylon.

Details on the size of the working force and starting date for construction have not been worked out yet.

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Paper: Plans for the construction of a $3-million semi-chemical pulping addition have been declared by West Virginia Pulp and Paper Co., Charleston, S.C. Estimated increase in production: 200 tons/day. Engineering and designing phases of the project are nearly complete.

CW INDEX

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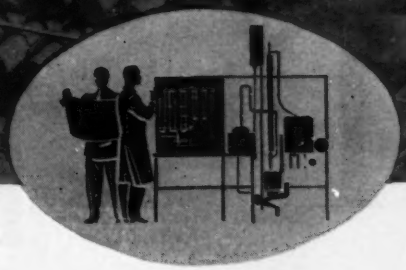

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through original developments in many fields of chemical technology.

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by supplying the experience and team-work necessary to convert pilot plant performance into full-scale operation.

We welcome the opportunity to sit down with your engineers and technicians to discuss how we may best help you.

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CHEMICAL PROCESSES—Processing plants designed and constructed in accordance with the client's data.

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BLAW-KNOX COMPANY
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People *will talk*

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"Chemico helped us develop our industry"

"Chemico" heeft ons meer gegeven dan wij verwachtten.
"Chemico gave us more than we expected"

"كيميكو" تبنه
"It's designed by Chemico"

"केमिको" ने सारा काम किया।
"Chemico did the whole job"

"Chemico" comprend nos problèmes.
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"CHEMICO" SABE SE É PRÁTICO.
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ケミコに尋ねよう!
"Let's ask Chemico about this"

La reputación de "Chemico" nos ha persuadido.
"Chemico's reputation sold us"

When our representatives travel to the far corners of the earth, they find that word of Chemico's activities has gone before them.

Yes, people *will* talk . . . and carry the news of Chemico accomplishments in the design and construction of plants for the production of heavy chemicals: fertilizers for India, Mexico, the Philippine Islands and Egypt; sulfuric acid for Canada, England, Formosa and Brazil; urea for Japan; sulfur recovery for Colombia; pickle liquor recovery for the Union of South Africa, to name a few. And naturally these are in addition to numerous large-scale projects in the United States.

Chemico has created, designed and erected more than 800 installations during the past 37 years that have given people much to talk about. That's why "Discuss it with Chemico" has become a byword of those who need new facilities or additional plant capacity to meet the world's ever-expanding heavy chemical needs.

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B&I . . . . . .

Pay-Off for Proposals

If statistics really present a true picture, American Cyanamid has a 20,000-man brain trust in its successful suggestion system. For last year its workers turned in a staggering number of suggestions for improving various phases of company operations, and an equally surprising number were adopted.

In 1952, Cyanamid awarded more than $74,338 to employees for their suggestions. An average of 103.3 suggestions per 100 employees was received, which is considerably higher than the national average for industry. Cyanamid's Damascus, Va., plant, for example, registered a startling 386 suggestions per 100 employees.

Although Cyanamid has no reason to offer for the fertility of its employees' suggestive powers, it does attribute the voluminous flow to a big promotion push for its system, aided by posters, individual plant promotion men, and constant reminders of financial benefits to be reaped, which are circulated through the inter-company employees' bulletin.

The four highest awards last year were $1,500, $860, $800, and $600; all top winners made suggestions for industrial improvements. Stickers of pressure-sensitized tape for use on overseas packages won top honors, while a plan for bathing plates and frames in a special bath to remove corroded material and the possibility of reworking dyes ran close seconds.

Like Money in Bank: One unique factor, Cyanamid claims, is that as the suggestion proves its worth, more money is paid out to the original suggester. The man who originally puts the slip in the box reaps additional benefits from improvements worked out by Cyanamid's labs. Thus the winners of the $860 award actually received $1,360 over a period of two years.

Time and equipment savers are usually the top winners but a goodly number are suggestions for office system improvements. The fact that Lederle, Davis & Geck, and all of Cyanamid's other branches and plants plus the New York headquarters are included in the company's total figures may account for the vast number of actual suggestions. But equally amazing is the fact that 5,511 suggestions out of the 22,155 processed were actually adopted. All in all, it would appear that Cyanamid has certainly reaped an unusual rate of return per worker, while the employees themselves are continually reminded of the rewards to be gained from investing in a new idea.

AMERICAN Cyanamid PROVES

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Custom molded from polyester resin and glass fiber, a large one-piece unlined tank 14½ feet in diameter by 8 feet high has solved the corrosion attack problem as an evaporator tank in the alum plant of American Cyanamid Company at Mobile, Alabama. Previously a steel tank was used, lined first with lead and then with acid-proof brick. With a pH of three, the hot liquid still attacked these linings with resulting high maintenance costs as well as constant danger of product contamination from the brick.

The process cycle involves loading the tank with alum sulfate liquor at 160° F. raising the temperature to 242° by steam coils in the tank to evaporate the liquor to dryness in four hours.

Many Advantages of New Tanks

Advantages of the new reinforced plastic tank are many and substantial. Cost is less than half the lined steel tank. Weight is under 20% of the lined steel. Corrosive attack as measured on various pilot applications will be negligible over an indefinitely long life.

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While the application described here is in an alum manufacturing plant, every user of alum will be interested because he shares the same corrosion problems in some degree. Papermakers, tanners, water treatment plants — everyone using alum can profit by investigation of PLA-TANK Resin-Bonded Glass Laminate Products.

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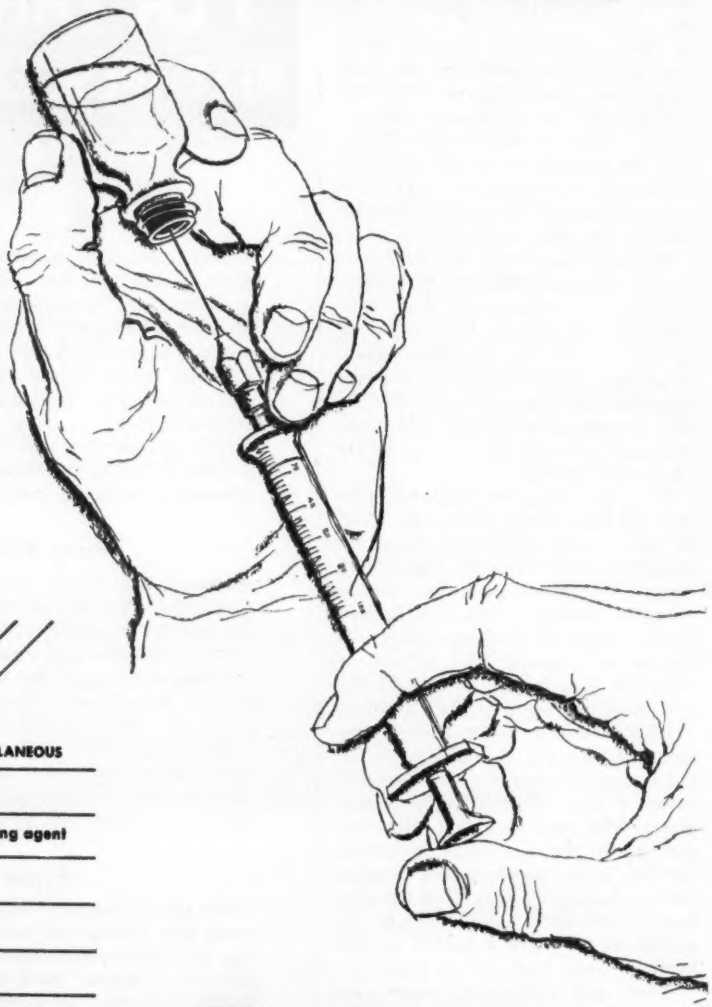

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acetic acid	■	■	■	■	
acetic anhydride	■	■	■	■	dehydrating agent
acetaldehyde	■	■	■	■	
acetanilide	■	■	■	■	
acetone	■	■	■	■	
ethyl acetate	■	■	■	■	
isobutyl acetate	■	■	■	■	
isobutyl alcohol	■	■	■	■	
isopropyl acetate	■	■	■	■	
hydroquinone dimethyl ether	■	■	■	■	ultraviolet inhibitor
oxidized cellulose	■	■	■	■	hemostatic agent and adsorbant

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"Our main objection comes when we feel the tariff act is not being administered with the same intent that prevailed when it was written."

Fissures in the Wall

U.S. chemical manufacturers will be attentive when debates on renewal of the Reciprocal Trade Act move Congress into the topic of tariffs in general.

One company president isn't opposed to extension of Reciprocal Trade. He wants the basic tariff law amended to ensure proper classification of new products, and faithful administration of the law.

Within the next few weeks, Congress will begin deliberating the advisability of renewing the Reciprocal Trade Agreements Act, the cornerstone of present traiff rates and policies. And, outside of the Capitol, proponents and opponents of tariffs are marshaling their arguments for the coming debate.

To help assess the impact on the chemical industry of any "trade, not aid" policy, CHEMICAL WEEK this week asked a relatively small chemical manufacturer for views on the subject. Fred Dehls, president of Benzol Products at Newark, N.J., gave these replies to CW's questions:

CW: Are any of the chemicals which you produce facing competition from imported material?

Dehls: Sure there are—one in particular on which we're having trouble is theophyllin.

CW: That's classified as a pharmaceutical?

Dehls: It's a synthetic medicinal that used to be brought in under paragraph 5 of the tariff act at a 12½% ad valorem rate.

CW: This paragraph covers what materials, now?

Dehls: Well, among other things, all medicinal preparations obtained naturally and artificially and not specially mentioned anywhere else. Now theophyllin is being brought in under paragraph 34, which covers drugs such as barks, berries, beans and buds—and then there's a clause "and all other

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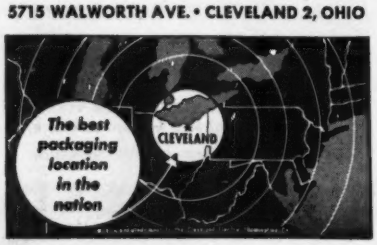


drugs of vegetable or animal origin."

CW: And this would include theophyllin?

Dehls: It can be extracted from tea, but today it's not produced that way here nor in any part of the world; but that is the catch: it can be—not that it is, but it can be.

And later on the paragraph says that these materials can be advanced in value by shredding, grinding, chipping and such mechanical processes. And then it says, "or any other process or treatment whatever beyond that essential to the proper packing of the drugs and prevention of decay and deterioration." The ad valorem tariff here is 5%.

This is a loophole which the importers have seized upon. The difference between the paragraphs is 7½% duty. It takes a stretch of the imagination to get theophyllin under the cheaper one, and I don't think that was the intent of those who wrote the tariff act in 1930.

CW: In other words, your plaint is not so much that the material is imported, but rather—

Dehls: Our objection is the bringing in of materials in a way that the writers of the tariff act never intended.

Of course, there are many products being produced today which weren't even considered at the time that the act was written. So I would say it is very necessary to get the tariff classifications brought up to date.

Right now, our main objection is that the tariff act is not being administered with the same intent that prevailed when it was written. Where it is, we feel we can compete with imported material.

CW: How about your customers? Are they turning to the imported theophyllin?

Dehls: They much prefer to buy American-made material because they're sure they'll get it month in and month out, regardless of political disturbances in other parts of the world. They might pay us a premium for this, but they won't pay an excessive one.

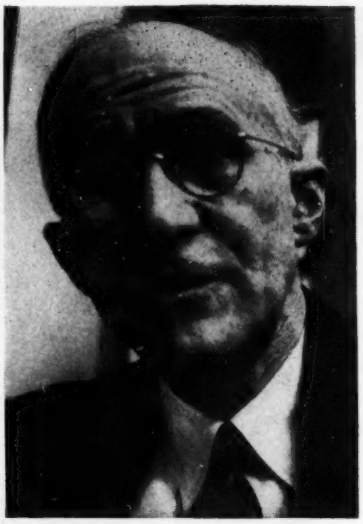
The marketing policy of the importers is very unstable. Importers don't set a price; they just watch and listen to what we do, and then try to do a little better pricewise.

CW: Can't you take this case to court?

Dehls: We've been advised that it wouldn't do much good. The Customs Bureau approved this classification of theophyllin because of an appeal court decision back in 1948.

CW: That was about another material that could be made naturally?

Dehls: . . . Yes, it had to do with an estrogenic hormone. And then there



"The marketing policy of importers is very unstable."

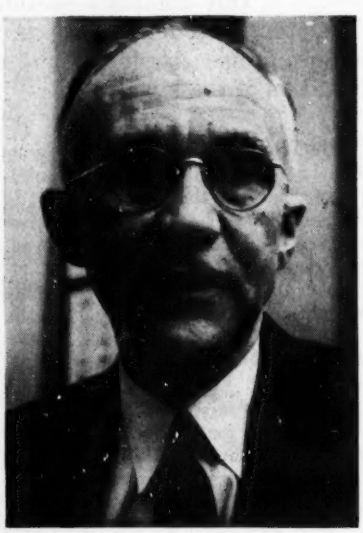
was another case where even more processing was done on a natural material—even esters were produced—but that material was also considered classifiable under paragraph 34.

CW: Again, that "or other operations" clause?

Dehls: Right. And there's another point to remember. It's a very long and difficult process to try to get relief for any such classification—and expensive.

CW: You mean legal help?

Dehls: Getting the necessary counsel and also getting chemical experts to prepare and give testimony. That's where the Synthetic Organic Chemical Mfrs. Assn. helps. Its counsel gets into the thick of things and arranges for expert testimony which he can cor-



"I would say it is very necessary to get the tariff classifications up to date."

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For further information on propylene glycol or any CARBIDE chemical, write for your copy of "Physical Properties of Synthetic Organic Chemicals" (F-6136) or the "Glycols" booklet (F-4763). Offices in principal cities—in Canada: Carbide and Carbon Chemicals, Limited, Toronto.

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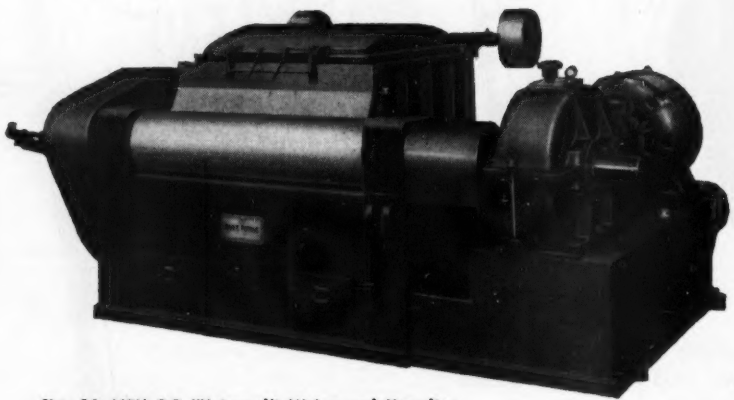

Size 16, NEM B-P "Universal" Mixing and Kneading Machine for heavy plastic masses. Working capacity 150 gallons; total capacity 225 gallons. Fabricated steel trough shell jacketed for 150 psi. steam or water pressure. Cast iron trough ends are not jacketed. Saddle section has thermocouple for temperature control. Cast steel Sigma or Double Naben blades cored for circulating steam or water. Oil tight gear guards; anti-friction bearings. 50 HP motor.

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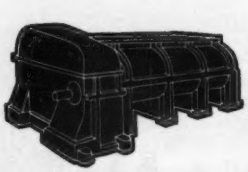
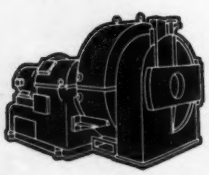
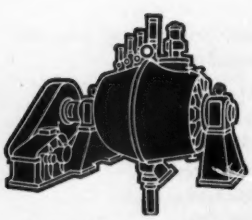


EQUIPMENT FOR FOUNDRY INDUSTRY



CENTRIFUGALS



EQUIPMENT FOR RAYON PRODUCTION

BAKER PERKINS INC.

CHEMICAL MACHINERY DIVISION • SAGINAW, MICHIGAN

"It's expensive to spend time getting classifications changed."

ral from members of the SOCMA.

But getting these experts isn't all you have to worry about. It's expensive to spend time getting classifications changed.

CW: Now how does American selling price* come into the case?

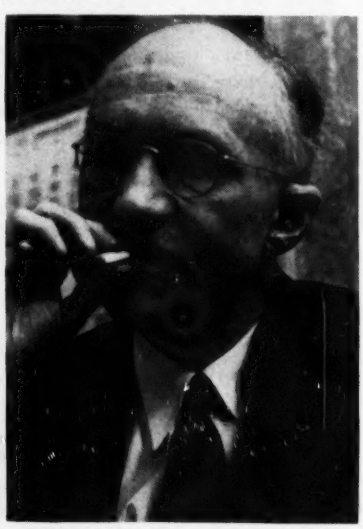
Dehls: In this instance it doesn't, since theophyllin is not a coal tar product. The coal-tar medicinals we make fall under paragraphs 27 and 28. And we're glad for the protection of these two clauses.

CW: The protection is primarily—

Dehls: The American selling price.

CW: Well, now, on about what part of your production would you say

* *Fortune* magazine this month commented that because U.S. and not foreign price is used as the basis for duties, "some products (particularly chemicals) wallow in egregiously high protection. . . ."



"If the tariff act were administered correctly, we feel we'd be all right."

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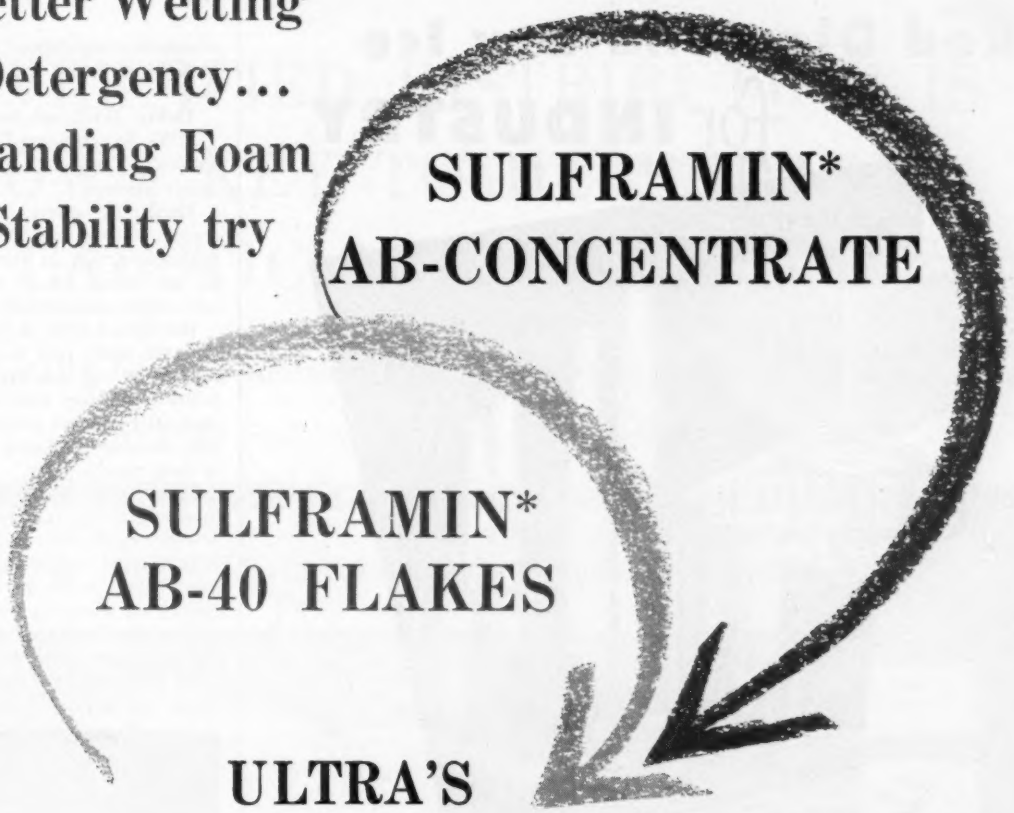

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you have competition? Import, that is, brought in under the right classification.

Dehls: Well, not too much.

CW: So, compared to some intermediates makers, your problems aren't severe.

Dehls: I guess not—except, of course, all our products don't have as high protection as theirs. All in all, I'd say about 5% of our production has import competition.

But there's little of this competition that we don't feel is quite fair and square. Where we have import competition, we feel that we have to be especially efficient producers. The foreign standard of living is low, but so is their productivity.

From our particular standpoint, there isn't too much worry about whether tariffs stay at the present half rate, or revert to the higher, full ones—just so long as we get proper classifications on what does come in.

This way, you can stay in the field and continue to compete, or withdraw. If the tariff act were administered correctly, we feel we'd be all right.

AMANN: In professional societies, no solace.

Collective Chemists

Convincing chemists and chemical engineers that collective bargaining on salary contracts is both effective and compatible with professional ethics is part of the task set out this year for officers of Engineers & Scientists of America.

Says 35-year-old ESA President Joseph Amann: "Engineers and scientists have been led to think of themselves as part of management, and to think of unions as bad—at least for them. They tend to be skeptical about the

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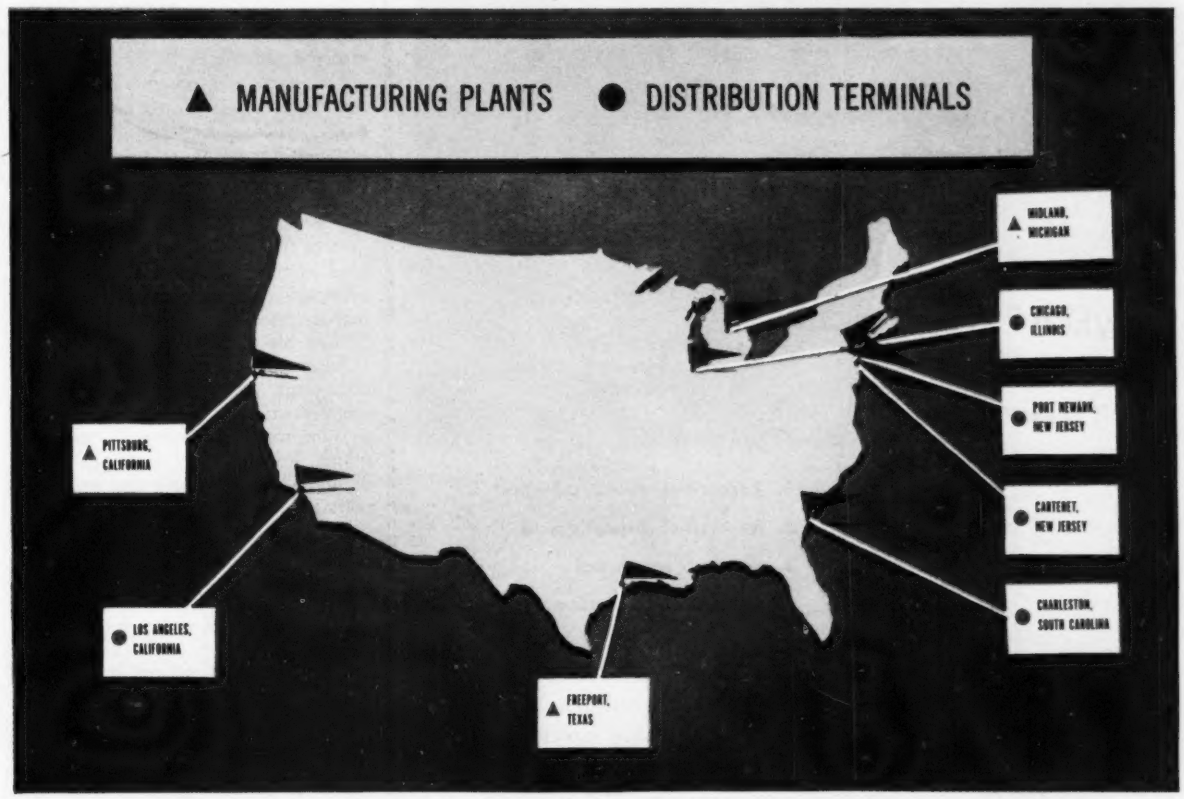

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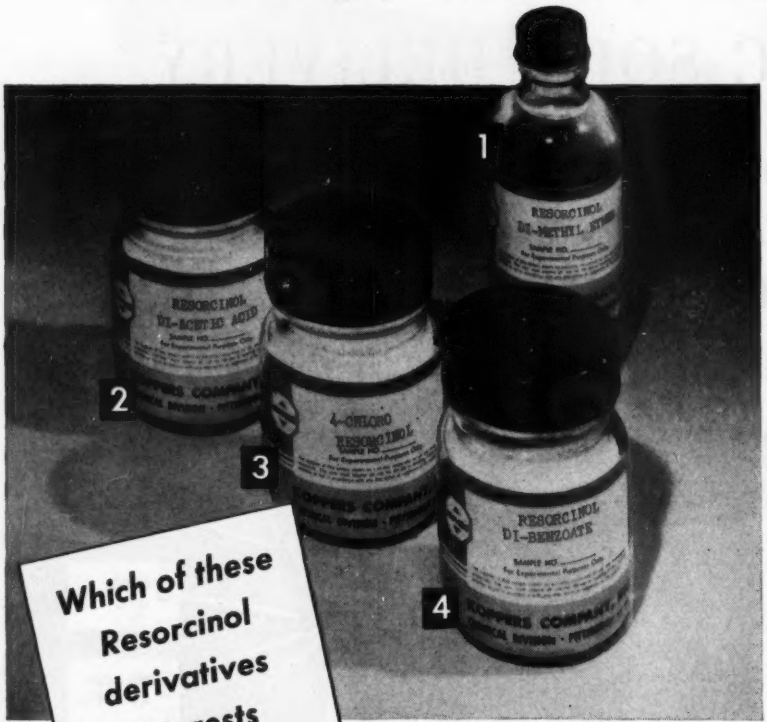

1. Resorcinol di-methyl ether
2. Resorcinol di-acetic acid
3. 4-chloro resorcinol
4. Resorcinol di-benzoate

ONCE again Koppers opens a fertile new field for laboratory experimentation by making available to the research chemist these *new* Resorcinol derivatives. Two-ounce samples of any of the above chemicals will be sent to you free of charge upon request. Or, if you prefer, you may order them in larger research quantities at nominal cost.

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whole idea. We have to overcome that skepticism. We have to show them how they can do more for themselves through collective bargaining, and that collective bargaining is as 'professional' as individual bargaining."

Seeks 10-Fold Growth: Earnest, mild-mannered Amann, who was elected to the top ESA office at the organization's recent convention in Los Angeles (*CW, Feb. 14*) after serving as provisional president since ESA was formed last June, is a senior process engineer with Minneapolis-Honeywell. That he profoundly believes in the destiny of his association is seen in his optimism that its present membership of around 40,000 eventually will swell to include all of the nation's estimated 400,000 engineers and scientists employed in non-supervisory capacities.

Chemists and chemical engineers, Amann recognizes, are not generally employed in as large numbers as, for instance, electrical and mechanical engineers. But he thinks this situation is changing rapidly; and that as chemical departments become larger, the men in them will have the same problems as other engineers and scientists. He estimates that chemists and chemical engineers now make up about 10% of his membership.

After the convention, Amann told CHEMICAL WEEK he doesn't believe engineers and scientists can find solace in existing professional societies, which, he says, "are made up largely of management people and speak for management." In any case, he points out, those societies can't be legal bargaining agents.

Zealot for Organizing: ESA is designed to meet a real economic need, Amann holds. His reasoning goes like this:

"In companies where engineering and research departments are large, engineers and scientists of necessity can't be treated as individuals. The companies must deal with them collectively, so the engineers must bargain collectively to be effective." On this point, his view coincides with that of the CIO: "Engineering income has steadily declined in relation to that of other groups of employees. The reason is easy—the others are organized."

In the chemical industry, many persons—including some chemists and engineers—will disagree with Amann's dogma on the need for organizing. But if engineers and scientists react to economic pressures and organizers' arguments in much the same manner as hourly paid workers do, the ESA membership may be doubled before next year's convention in New York.

Powell Engineers always look to the future!

Fig. 2491—Stainless Steel O. S. & Y. Gate Valve for 150 pounds W. P. Available in many other corrosion-resisting metals and alloys. Also made with screwed ends.

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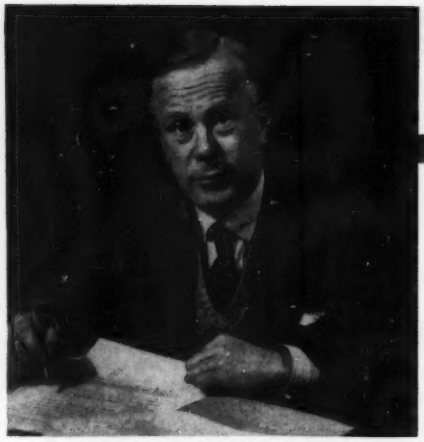
RESEARCH . . . .

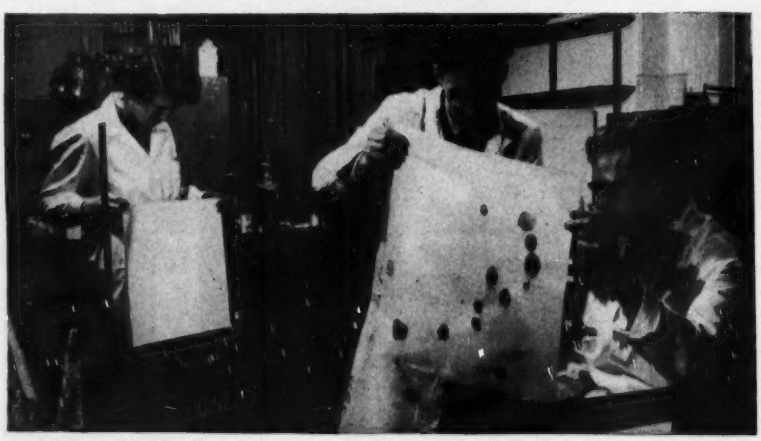
For Better Wool . . .



PICTURES: EASTERN PUBLISHERS SERVICE

A. B. D. CASSIE, Torridon director, heads world's biggest wool research set-up.

INSPECTION OF RAW WOOL by biology mentor A. B. Wildman *(right)* highlights fleece-to-fabric program. Sample later will undergo rigorous physical tests.



PAPER CHROMATOGRAM gives insight into wool protein make-up. Nobel prize-winners Martin and Synge pioneered their chromatography work in WIRA laboratories.

CHRONICLERS of textile research have ample justification for dubbing this the golden era of the synthetics. But no estimate of the current situation could be valid without a hard look at what's happening in natural fibers. There's plenty to see: equipped with the newest tools of their calling, researchers at a score of industrial laboratories throughout the world are probing the complexities of wool, cotton and silk, shooting for a better product, lower costs.

It's a constant—and expanding—effort. Item: England's internationally famous Wool Industries Research Assn. (WIRA) has just completed a $0.5 million addition to its facilities at Torridon, Leeds. Biggest name in world wool research, WIRA's laboratories and mill facilities are maintained by grants from British industry, the Department of Scientific and Industrial Research, and the Commonwealth countries through the International Wool Secretariat.

On hand for the unveiling of WIRA's new addition, the CW Camera caught British wool researchers in business-as-usual probes of:

- **Built-in mothproofing** by chemical modification of the wool fiber. Aim of the study is the determination and extraction, if possible, of fiber ingredients that serve as food for the moth. Mothproofing might then be made possible by removing or modifying these ingredients before processing.
- **Wool growth** and the ways in which it is influenced. One immediate goal is the discovery of the exact connection between the birthcoat of the lamb and the corresponding adult fleece.
- **Fiber structure** and the composition of the wool protein, keratin.
- **Dye penetration** with the aid of radioactive isotopes.

But WIRA's accomplishments are

You need FACTS—the *kind* of facts we have for you!

That NEW plant for today's defense production *tomorrow* must produce for a peacetime economy. . . . So, the problem is far *more* than finding a suitable site. . . . That's only the elementary requirement.

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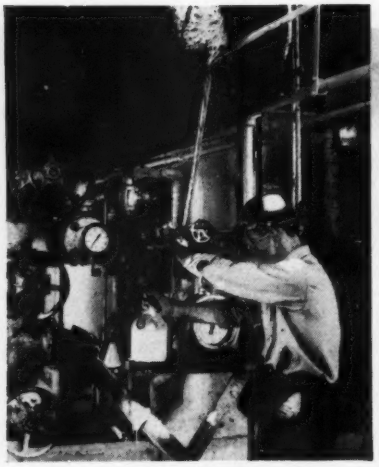

INDUSTRIAL ODORANTS

During the past few years the perfume industry has been called upon to expand and diversify its traditional activities to include the vast new field of industrial odorants. If you manufacture any of the items on this check list in **cake, powder, liquid, paste, aerosol** or **syrup** form—D&O has the fragrance that will add shining new sales appeal at little extra cost. Write today for catalog, samples and specific information.

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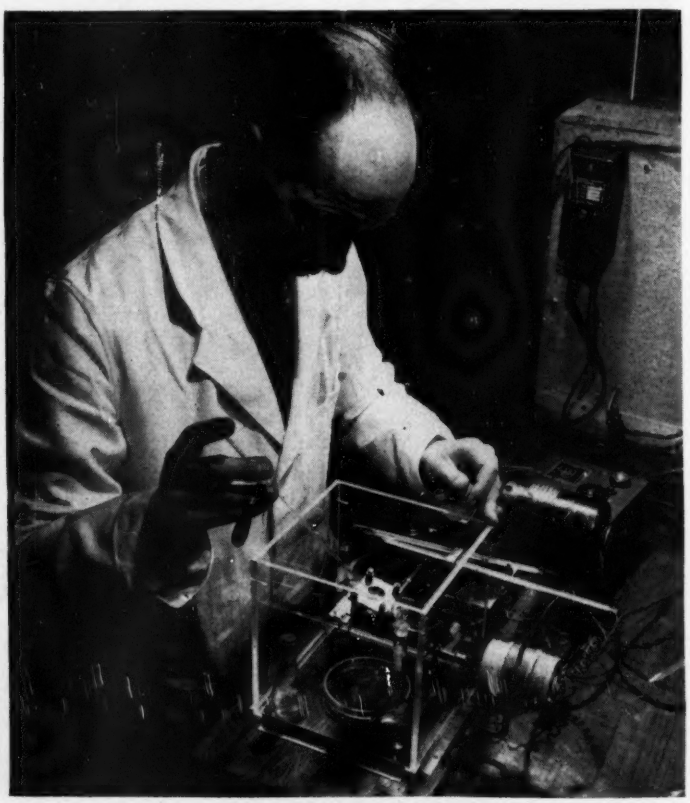
TRACER STUDIES play an important role in the wool research effort. Working through glove ports, researcher metes out radioisotope sample.

Story begins on pg. 32

Trial by Hot Atoms . . .

Continued on pg. 36



RADIOISOTOPE is pipetted into apparatus for probing dye penetration of fibers. Amount of isotope in dye-stripping bath measures penetration.

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LINDANE

from TENNESSEE

Lindane, the newest high-potency insecticide, is putting the biggest bite of all times on insects. Formulations of Lindane applied as recommended by the United States Department of Agriculture control sarcoptic mange and lice on dairy animals . . . are effective sprays for edible field crops and truck gardens. Lindane from TENNESSEE has an important role in the agricultural and household fields for it effectively controls more species and types of plant and animal insect pests than any other insecticide ever used.

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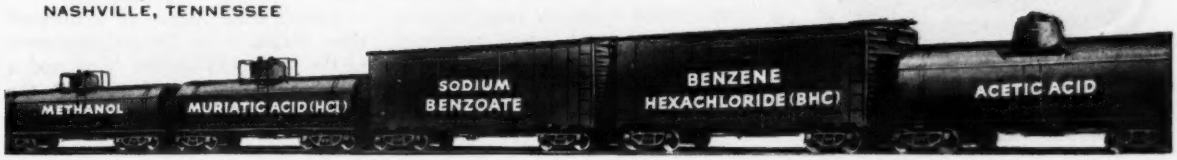

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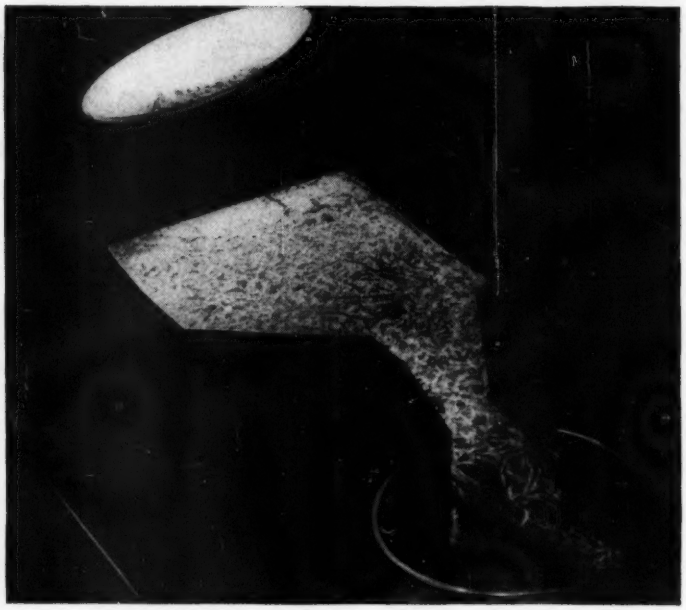
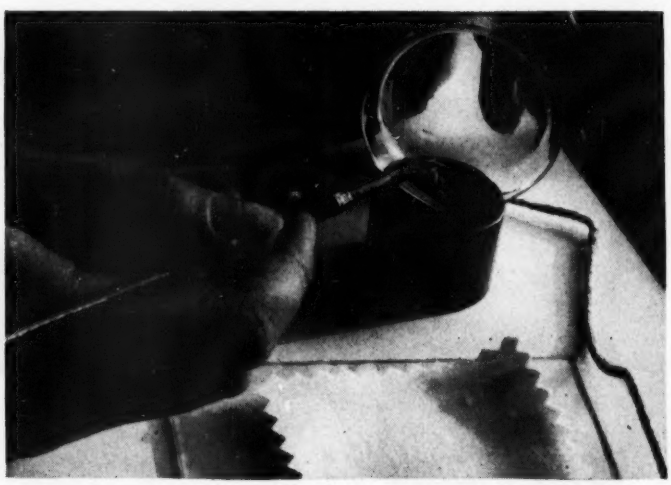


SPOTLIGHTED IN TROUGH, carpet beetles implement WIRA's quest for better bug-killers. Beetles, resistant to most insecticides, are a real menace.



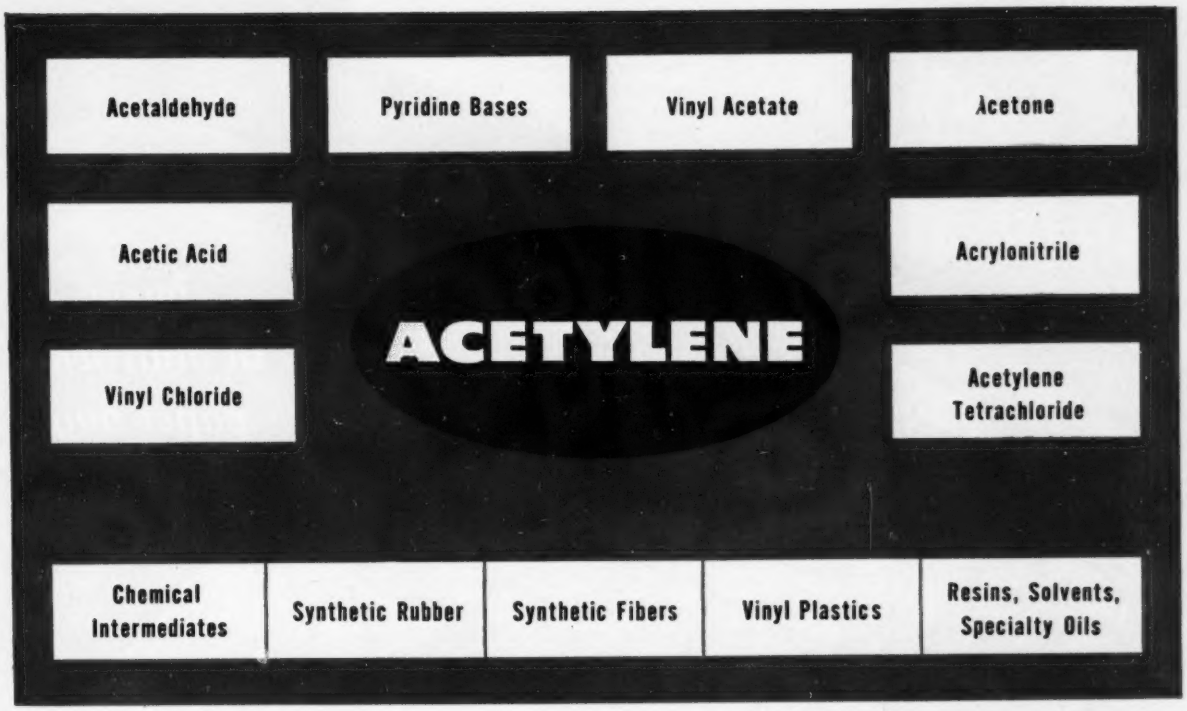
CLOTHES MOTH GRUBS aid in tests of new moth-proofing agents. Container is inverted on treated swatch, permits grubs to feed in darkness.

Story begins on pg. 32

And Hungry Insects

not exclusively in the realm of the future. The Association might be content to rest on its laurels of past scientific and technological achievement. Nobel chemistry prize winners (1952) Martin and Synge pioneered their award-winning advances in partition chromatography at Torridon. And WIRA also lays claim to the development of the fiber-length testing machine, among other labor-saving devices that are now essential adjuncts to efficient textile manufacture.

There's little chance of a slack-off now. Faced with the encroachment of the synthetics on one hand and a spate of unanswered mysteries on the other, it's only a question of time before WIRA builds again.



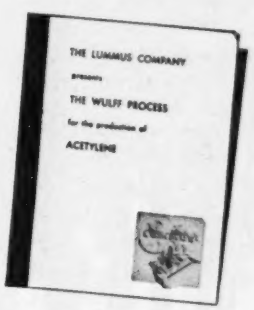
Low-cost acetylene . . . for high-demand products

Acetylene is fast pushing into the limelight as a base material for making organic chemicals. In stride with this activity, Lummus makes available the Wulff Process for the production of high-purity low-cost acetylene from light hydrocarbons.

There is much to recommend a plant utilizing the Wulff Process:

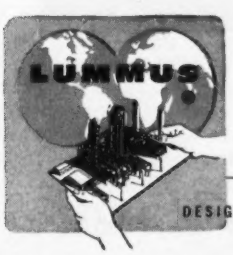
- *Acetylene manufacturing costs of about 6½ cents a pound are indicated.*
- *No oxygen plant is required; electric power costs are modest.*
- *Low maintenance costs have been proved.*
- *Process flexibility permits continuous operation on a variety of feed stocks, in units within a broad capacity range.*

Lummus is prepared to design, engineer and build a Wulff Process plant to fit your acetylene scheme. We'd be pleased to team up with you.



Want More Information?

Lummus has developed valuable technical and economic studies of acetylene production by the Wulff Process. These data are bound into a 24-page report, a copy of which is yours for the writing, without obligation. Just drop us a line at Room 359, 385 Madison Avenue, New York 17.



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Triple Build-Up

Expansion is the keynote for the week's research news. Plans for major laboratory additions by three companies foreshadow stepped-up research activity in as many branches of the chemical and process industries.

• Close on the heels of last week's revelation by General Chemical Division of its plans for a $2-million research expansion at Morristown, N.J., comes word of building activity by another member of the Allied Chemical & Dye Corp. family. This time it's National Aniline Division with blueprints for a new $2.8-million research and engineering building at Buffalo, N.Y.

Slated for occupancy by 1954, the proposed laboratories will provide National Aniline with 85,000 square feet of floor space for resin, dyestuff, synthetic detergent, and general organic chemical research.

• Closer to realization is Stanolind Oil and Gas Co.'s new Tulsa, Okla., research center. Structural work on the four buildings has been completed, laboratory equipment is now being installed. Located on an 80-acre tract within the city, the new center will house all of Stanolind's technical activities, a staff of at least 425 people. Finishing touches should be applied this summer.

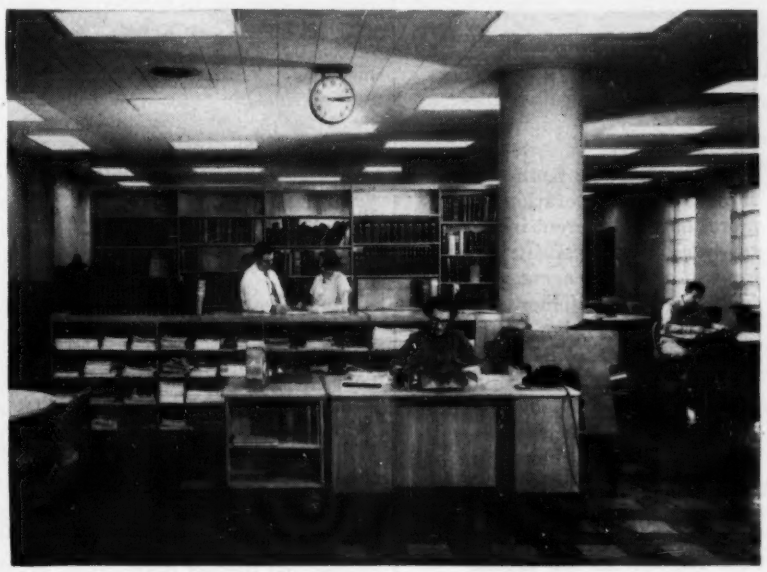
• Rounding out the trio is United States Steel Corp.'s proposed steel technology research center. To go up in a rural area near Pittsburgh, Pa., the new three-building addition will centralize U.S. Steel research, be devoted primarily to applied problems. Heading the agenda: ways to conserve scarce metals, offset the deteriorating quality of raw materials; development of steels for specialized military needs.

•

Taking No Chances: Minneapolis-Honeywell Regulator Co.'s efforts to guard its instruments against the damaging effects of corrosion have taken a new twist. Not overlooking the human element, company chemists (based on the roof) have come up with a synthetic sweat for testing metal finishes. Their recipe: salt plus acetic, butyric and valeric acids.

•

Down to Fundamentals: Researchers Kearns, Sterburg and Vinson of the University of Illinois have arrived at an interesting explanation of a mechanism of acquired DDT resistance in



Study in Contrasts

OLD AND NEW blend in Monsanto Chemical Co.'s recently commissioned organic chemicals division research library. Contrasting with the room's modern decor are yellowed journals dating back a century or more. Vital statistics: the library occupies 4,000 square feet on the third floor of Monsanto's St. Louis general headquarters; houses 8,000 volumes; maintains an indexed file of 50,000 patents; files more than 3,000 research and engineering reports; receives more than 400 magazines and periodicals a month; and keeps a microcard file of *Zeitschrift fur Physikalische Chemie* (1887-1944) and *Zeitschrift fur Anorganische Chemie* (1892-1944). The microcards—each containing 64 journal pages—take up 2½ file trays, save 12 full shelves.

Any way you look at it—from top to bottom—your best buy is—RAYMOND!

RAYMOND MULTI-WALL PAPER SHIPPING SACKS

Producers, packers, and shippers of crushed, powdered and granulated chemicals save time, worry, and material loss when these tough, strong shipping sacks are on the job.

They are built to withstand rough handling, dampness, and odor penetration. They're sift-proof, dust-proof, and water-resistant.

Raymond Shipping Sacks are CUSTOM BUILT to your particular packing and shipping needs. They are available sewn or pasted, with valve or open mouth, printed in multi-colors or plain.

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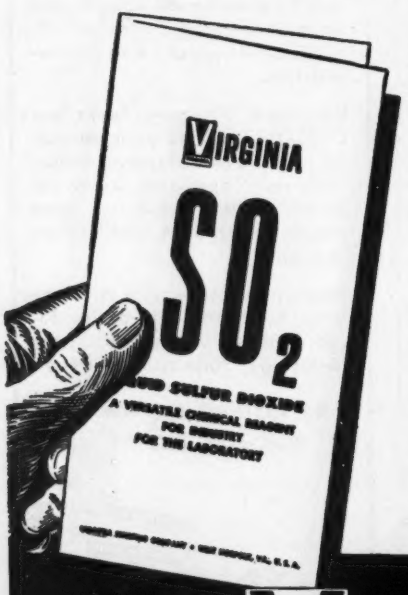
Better grass silage—cheaper

Untreated grass silage is, of course, highly perishable; and though various methods of checking fermentation have been employed, each has had its own drawback—difficulty of application, ineffectiveness, high cost.

Use of liquid sulfur dioxide, begun experimentally in 1940 and established commercially in 1951 by Virginia Smelting Company, has proved a most satisfactory all-round solution to the problem. Under the trade name "Silagas," the company's SO_2 is now in use on hundreds of farms. It has been found to be 30% to 60% lower in cost than any method previously employed—and successful in preserving a high proportion of proteins, organic nutrients and carotene that were lost in earlier ensiling processes.



Could SO_2 help you?
For three decades "Virginia" has been continuously working to make its SO_2 more useful to industry. To date, the versatile chemical has found a place in the operations of more than 40 different industries, as a reducing, neutralizing and bleaching agent, preservative and antichlor, and for pH control. Perhaps "Virginia" chemists could point out ways in which SO_2 would be helpful to you. They'd be glad to look into the possibilities, and without obligation. As a first step, why not send for our folder on "Virginia" SO_2.

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flies. The theory is that some flies inherit the ability to develop an enzyme which breaks up the insecticide molecule, renders it nonpoisonous. A crude form of the enzyme has been isolated, is claimed to work in the test tube. Carried to their logical conclusion, the Illinois experiments could lead to effective methods of overcoming some kinds insecticide resistance.

Also on the academic scene, Indiana University pharmacologist K. K. Chen reports a technique which, he says, has saved 47 of 48 victims of cyanide poisoning. Key: Sodium nitrate, thiosulfate injections.

•

Unexpected Find: In his probe for new anti-TB agents, researcher Leon Katz of Schenley Laboratories has come upon a new group of fungus-attacking compounds. It comprises derivatives of 2-hydrazinoxazole, breaks new ground in the search for better antifungus chemicals.

•

Stepping Out: After six years of chemical and clinical research, vitamin P has stepped out of the laboratory. The drug sparked widespread interest two years ago (*CW, Nov. 17, '51*) as a result of experiments initiated at Florida Southern College, has just been released to the medical profession. A bleeding arrestor, the vitamin has proved valuable (in clinical tests) in the prevention of stroke and complications of high blood pressure. It also is able to offset damage of radiation burns. Pasco Packing Co. (Dade City, Fla.) produces the new vitamin from citrus molasses. Distribution is by U.S. Vitamin Corp. (New York, N. Y.).

•

Freed for Research: An organizational shift at the Du Pont Co.'s Chattanooga (Tenn.) nylon plant portends a boost in process research at that location. According to plant manager W. H. Thalheimer, the change entails the creation of a new section to oversee production assistance, process and quality control. Object: to free the plant's technical section for increased process and product development activity. Plant Research Supervisor Lee Griggs will head the new wing.

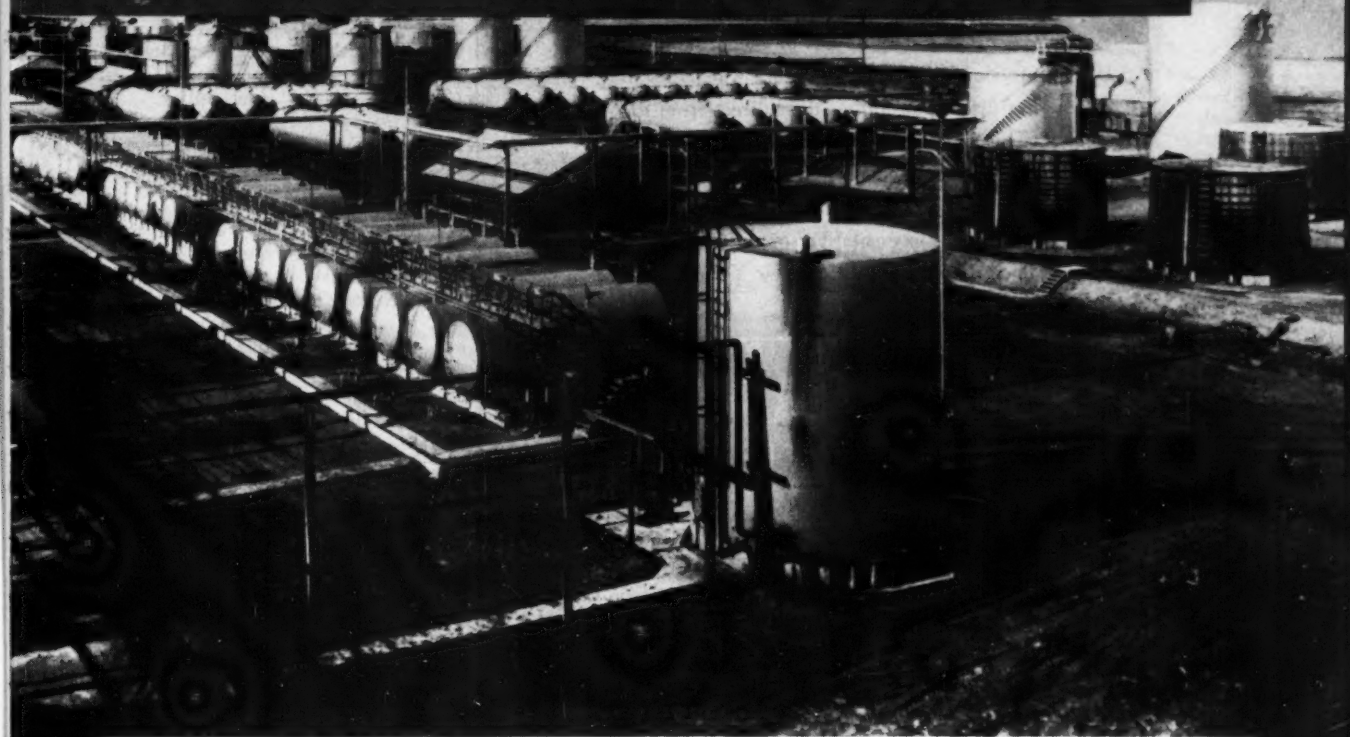
•

Screener: Under the terms of its new agreement with Sugar Research Foundation, Herstein Laboratories, Inc. (New York, N.Y.), takes over preliminary laboratory evaluation of proposed SRF research projects.

•

Samples Gratis: Thymidylic acid, a component of nucleic acid, is avail-

There's more to CORROSION than meets the eye



Sometimes VISIBLE...Often HIDDEN...Corrosion Strikes in Every Plant

This year, the Chemical Industry will pay millions of dollars for needless losses created by corrosion...*yet much of this corrosion may never be discovered* until it's too late to protect—and time to pay!

Corrosion is readily detected when it appears as rust layers or failing paint on exposed surfaces. But, by far, the major costs of corrosion come from hidden areas—where only minute inspections and constant care can prevent costly failures.

YOU LOSE IN A "WAITING GAME"

Don't wait for rust or other visible signs to appear. Visible or hidden, corrosion will destroy costly equipment... halt production... cause unnecessary maintenance shutdowns... and contaminate valuable products. Thus, corrosion dips deep into your profits as it creates needless losses totaling thousands of dollars.

YOU CAN PREVENT NEEDLESS WASTE

Check your plant for corrosion's presence. Double-check areas that may be vulnerable to *hidden corrosion*. If you would like help, an AMERCOAT Field Engineer will gladly assist you in making a thorough analysis. There is no obligation.

What is AMERCOAT?

AMERCOAT is a method of corrosion control. Not just a single product, but a complete LINE of coatings, individually formulated to solve or control specific industrial corrosion problems.

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able to biochemical investigators from California Foundation for Biochemical Research (Los Angeles). Currently, ten milligram samples are being distributed without cost. Within several weeks, the non-profit Foundation expects to be in a position to satisfy, at cost, total research demand for the acid and related compounds.

•

G.I. Trials: Army medics are testing Burroughs, Wellcome and Co.'s (Tuckahoe, N.Y.) new antimilarial, Daraprim, on soldier patients at Fort Knox Hospital. The drug—a substituted pyrimidine—has already been introduced in England (*CW, Dec. 6, '52*), will be tried for six months at the Kentucky station.

•

Vinyl News: Prufcoat Laboratories, Inc. (Cambridge, Mass.), is out with a new vinyl protective coating. It's the company's CP vinyl system, which, according to Prufcoat, "combines for the first time the highly desirable properties of a heavy-duty drying oil primer with the . . . chemical resistance . . . of vinyl coatings." How it's done is the big (and unanswered) question, but the firm will demonstrate its brainchild to all comers at National Assn. of Corrosion Engineers Chicago show (Mar. 17-20).

•

Trail Blazer: What may well be the first freely available working guide in small nuclear reactor technology is now coming off the presses. It's a nine-chapter volume, edited by Ernest H. Wakefield, president of Radiation Counter Laboratories, Inc. (Skokie, Ill.). Of considerable industrial significance, the new book tells how to select research reactors, explains operating methods, gives cost studies and contract procedures. Title: "Handbook on Small Research Reactors for Universities and Industry." Cost: $6.

•

Sweet Savings: Good news for sugar refiners comes this week from J. M. Brown of Revere Sugar Refinery (Boston). Brown, in a report to the New Orleans meeting of Bone Char Research Project, Inc. (Supported by sugar refiners, National Bureau of Standards and U.S. Dept. of Commerce), told refiners how they could halve processing time and cost.

Key: doubling the amount of water used in the char wash cycle, lowering its temperature and speeding its flow through the purifier. In current refinery practice, used char is thoroughly washed every four or five days.

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To Precise Specifications

AMMONIUM MOLYBDATE, REAGENT

$(NH_4)_6Mo_7O_{24}.4H_2O$ F.W. 1235.95

Meets A.C.S. Specifications

Assay (as MoO_3)	81.0-83.0%
Insoluble Matter	0.005 % Max.
Chloride (Cl)	0.001 % Max.
Nitrate (NO_3)	0.003 % Max.
Phosphate (PO_4)	0.0005 % Max.
Sulfate (SO_4)	0.005 % Max.
Heavy Metals (as Pb)	0.001 % Max.
Magnesium and Allied Cations	0.020 % Max.
pH of 5% Solution at 25°C	5.0-5.5

Particle Size (Mesh): at least 95% thru U.S. No. 20 Sieve
at least 90% on U.S. No. 140 Sieve

AMMONIUM MOLYBDATE, C.P.

$(NH_4)_6Mo_7O_{24}.4H_2O$ F.W. 1235.95

Assay (as MoO_3)	81.0-83.0%
Insoluble Matter	0.010 % Max.
Chloride (Cl)	0.005 % Max.
Nitrate (NO_3)	0.010 % Max.
Phosphate (PO_4)	0.001 % Max.
Sulfate (SO_4)	0.010 % Max.
Heavy Metals (as Pb)	0.003 % Max.
pH of 5% Solution at 25°C	5.0-5.5

Particle Size (Mesh): at least 95% thru U.S. No. 20 Sieve
at least 90% on U.S. No. 140 Sieve

SODIUM MOLYBDATE, TECHNICAL

Na_2MoO_4 F.W. 205.94

Assay (Na_2MoO_4)	98.0 % Min.
Insoluble Matter	0.050% Max.
Chloride (Cl)	0.20 % Max.
Sulfate (SO_4)	0.20 % Max.
pH of 5% Solution at 25°C	9.0-10.0

MOLYBDIC ACID, REAGENT

Meets A.C.S. Specifications

Assay (as MoO_3)	85.0 % Min.
Insoluble in NH_4OH	0.010 % Max.
Chloride (Cl)	0.002 % Max.
Phosphate (PO_4)	0.0005% Max.
Sulfate (SO_4)	0.020 % Max.
Heavy Metals (as Pb)	0.003 % Max.

Particle Size (Mesh): at least 99% thru U.S. No. 40 Sieve
at least 10% thru U.S. No. 325 Sieve

MOLYBDENUM TRIOXIDE, REAGENT

MoO_3 F.W. 143.95

Meets A.C.S. Specifications

Assay (MoO_3)	99.5 % Min.
Insoluble in NH_4OH	0.010 % Max.
Chloride (Cl)	0.002 % Max.
Nitrate (NO_3)	0.003 % Max.
Phosphate (PO_4)	0.0005% Max.
Sulfate (SO_4)	0.020 % Max.
Ammonium (NH_4)	0.001 % Max.
Heavy Metals (as Pb)	0.005 % Max.

Particle Size (Mesh): at least 99% thru U.S. No. 40 Sieve
at least 10% thru U.S. No. 325 Sieve

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Molybdenum compounds are widely used in the production of catalysts, phosphomolybdic-phosphotungstic lake colors, molybdate chrome orange pigments, protective and decorative metal finishes, soil additives, and pure molybdenum metal for radio tubes, X-ray tubes, and incandescent lamps. They have specific uses in pharmaceutical, leather and textile manufacture.

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DISTRIBUTION . . . . .

DU PONT DEMONSTRATOR: James Shelnut shows that "Orlon Becomes a Man" because of its light weight and waterproof creases.

Into the Limelight

The soap companies' secure spot at the top of the list of promotion-spending chemical process industries is now being challenged. With a capital investment approaching a half billion dollars—and a market dependent on the unpredictable whims of the buying public—the makers of synthetic textile fibers have reached for their checkbooks and prepared for the worst. Out into limbo with the "better mousetrap" myth has gone the notion that any new "miracle fiber"* will sell itself.

Symptomatic of the change is the unprecedented multimillion-dollar budget allocated by Du Pont's Textile Fiber Dept. to advertising and promotion for 1953.

And setting the breathtaking new pace for the whole industry was last fortnight's "Orlon Becomes a Man" exhibit, pictured on these pages, at New York's Hotel Ambassador.

It isn't difficult to determine why Du Pont is willing to spend this kind of money promoting its six-fiber synthetic team—and to put its initial emphasis on Orlon. This year is the first full-fledged season for the acrylic yarn—and the company's $50 million bet is paying off in the form of a fiber jackpot that will amount to an

ORLON OATH: Wool-blend puppet starts show by promising "the truth."

* In a movement spearheaded by Union Carbide's Carl (Dynel) Setterstrom, the synthetic makers are trying to head off the "miracle" tag before it alienates the public because of its all-inclusive and even religious connotations. Favorite contender: "science fibers."

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new way to measure process variables

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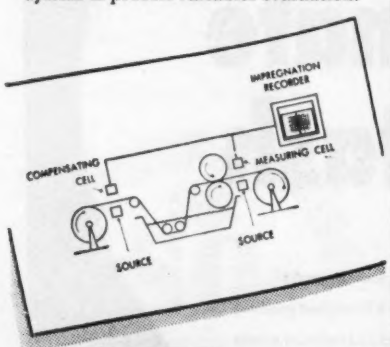

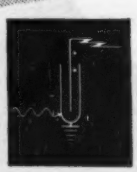

Electricity From Radioactivity

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DALLAS CHICAGO

HIGH STRUNG: Puppet producer Bil Baird *(right)* and his two-man crew animate Orlon cheviot, sharkskin and shetland suits.

estimated 100 million yards of Orlon-blend fabrics.

It will take a broad distribution base to move that quantity of goods—and that's why the Orlon exhibit was pitched at two key groups: the cutters who convert fabric into garments, and the retailers who sell the garments to the public. They form the final, essential links in the selling chain between the spinnerettes and the clothes closet.

Talking Suits: The bulk of the exhibit was predictable: countless yard-goods samples from 40 major mills; manikins sporting $45-$100 suits and overcoats; a demonstration counter proving that an Orlon crease can go swimming.

But the hit of the show was a puppet performance enacted by three test-worn Orlon suits. With a script written by Du Pont's textile experts, and animated by professional puppet producer Bil Baird, the men's wear came to life in a realistic argument over the benefits of the three types of fabric represented.

From Du Pont's point of view, however, the argument was academic: all three were variations on an Orlon-wool theme. As could be predicted, the suits finally came to an agreement that they were all equally wonderful. Du Pont hoped that its guest audience thought so, too.

DISCUSSION: Baird expresses astonishment at Orlon's fabric claims.

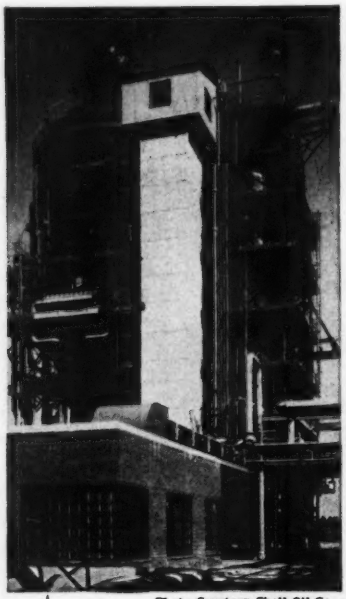
Glycerine provides the Humectancy

For over 57 years, Carter's has used Glycerine to keep stamp pads moist and free from "stick"... to dissolve and stabilize the materials in Carter's Rubber Stamp Ink. How well does it do the job? Carter's famous "Pump Action" stamp pads, which are guaranteed for 100,000 impressions, outsell all other makes!

Stamp pad inks for all purposes and all types of surfaces present some of the most difficult technical problems in ink-making. Carter's chemists originally selected Glycerine for its unusual combination of properties in making a stamping ink for marking paper and other absorbent materials. Glycerine's humectancy keeps pads from caking. Glycerine acts as a solvent for the dyestuffs and other ingredients in the ink. And Glycerine is non-reactive . . . won't cause rubber stamps to deteriorate . . . actually lengthens the shelf life of both pads and inks.

In hundreds of other applications in other fields, too—as a softener . . . emollient . . . preservative . . . lubricant . . . anti-freeze, Glycerine provides an unmatched balance of properties, ready acceptance, and established freedom from toxicity. For your copy of an informative booklet on Glycerine properties and uses entitled "Why Glycerine?", write Glycerine Producers' Association, 295 Madison Avenue, New York 17, N. Y.

Nothing takes the place of Glycerine



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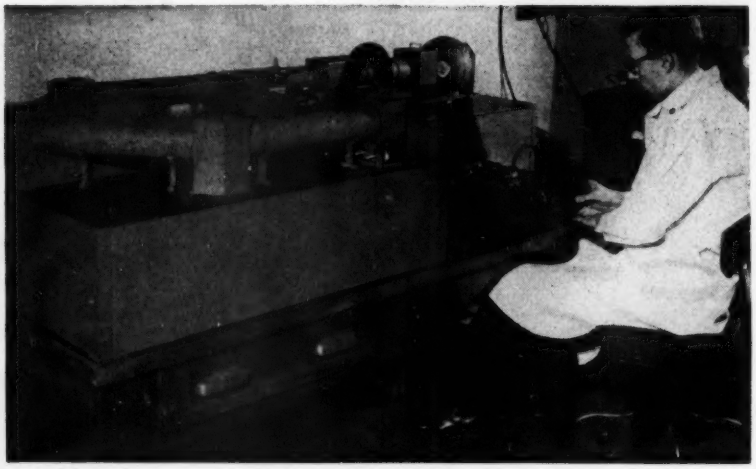

Controlled Colors on Cans

THE TITLE of "world's largest lithographer of metal cans" carries with it some world-size problems. Stamping out 125,000 miles/year of colorful lithographed steel sheets—at 34 separate locations and using over 400 different color inks (including 90 shades of red alone)—the American Can Co. was fast reaching an impasse on its color control systems. Something more accurate than the human eye was needed.

After several years of research effort, Canco has arrived at a solution to this problem: it is using a two-phase optical system that will take the guesswork out of its colors.

The first phase—after a customer has decided what shades he wants to use—is to have the colors permanently recorded by a $10,000 recording spectrophotometer at the company's central research labs in Maywood, Ill. This procedure supersedes the storage of "standard panels" that tend to fade off-standard between press runs.

At the same time, the new colors are measured by a smaller, cheaper reflectometer that is coordinated with similar instruments at Canco's various production plants (*above*). These permit the manufacturing personnel to make constant checks on their production runs (*below*). Moreover, they

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automatically coordinate the colors of cans produced for the same customer at different geographical locations.

With "recognition" colors playing an increasing role in the self-service selling of consumer items, Canco's new control system has more than an esthetic objective: its pay-off is at the cash register.

Off the Press

The history, manufacture, properties and uses of commercial aluminum sulfate is the subject of a new 43-page booklet, "Alum," now available from the Industrial Chemicals Div. of the American Cyanamid Co.

• Witco Chemical Co. has released a black-covered folder on "Witco Pigment Blacks," a properties-and-uses chart of the company's nine principal pigments.

• The Manufacturing Chemists' Assn. (Washington, D.C.) has published its Safety Data Sheet SD-50, a 15-page pamphlet on handling ethyl chloride.

• The Eastman Organic Chemicals Dept. of Distillation Products Industries (Rochester, (N.Y.) has prepared a wave length transparency chart for 12 "Spectro Grade" liquids used as solvents in spectrophotometric tests.

• The Soya Products Div., Glidden Co. (Chicago), has mimeographed a special price list covering 35 crystalline steroids and sterols it is willing to sell "in small quantities for research."

• The Greater New York Industrial Directory, Inc., is now offering its 772-page 1953 edition for $30.

• New price lists and catalogues have been issued by Dodge & Olcott, Inc. (essential oils and aromatic chemicals), Armour and Co. (fatty acids, oils, and derivatives), and Organic Research Chemicals, Ltd., Colnbrook, England (fine organic chemicals).

•

Magnesium Exports: Dow Chemical's Texas Division is readying a shipment of magnesium ingots for Sweden. It will be the first shipment of the metal in recent years to a foreign country. Other export sales—coming as a result of the recent relaxation of magnesium-export restrictions—are being planned for England, Western Germany and Japan.

Fiber Fracas Brewing

Further proof that "promotion" and fibers can't be separated (see p. 44) came last week as Union Carbide's Carl Setterstrom took some haymaking swings at Dynel's acrylic competitors.

In a special press conference at Manhattan's Chemists' Club, Dynel Sales Manager Setterstrom pulled no punches, saying that the main reason converters and cutters prefer Acrilan and Orlon over Dynel—despite the latter's 8¢/yd. price advantage in blends—is that they thereby can ride along on Du Pont's and Chemstrand's massive promotional campaigns to the public.

"It is our intention" said Setterstrom, "not only to prove that our fiber can do the job needed, but also to show that we have the promotional know-how."

Back of this blunt competitive declaration lies a calculated Union Carbide gamble. Dynel has been developed specifically as a "blending" fiber to upgrade wool and cotton—not replace them.

This is reflected in its high vinyl content, which makes it more susceptible to heat than its largely acrylonitrile counterparts. But with a cushion of wool or cotton, claims Carbide, this is negated. Dynel's currently lower price then becomes a dominant sales factor.

"Inner Structure": This vinyl-based price differential is hefty. Setterstrom quoted $1.28/lb. (delivered) for Dynel, and f.o.b. prices of $1.85 and $1.90/lb. for Acrilan and Orlon.

Moreover, Carbide is planning to sell its blend philosophy directly to the public. Its goal: the creation of blends that give the most in the way of washability, crease retention and light weight—at the lowest possible cost.

The central theme for this campaign will be "Dynel's Inner Structure." One illustrative gimmick will be to chemically leach a suit—removing the blending fiber of cotton or wool—and leaving a still-wearable fabric weave composed of the Dynel residue.

In Setterstrom's opinion, the battle of the acrylics may well be resolved in the next seven months. Acrylic staple will be flooding the market this year and will soon reach a level of 86 millions lbs./yr. This, he said, is four times the production rates reached by rayon, acetate, and nylon at equivalent stages of their development.

It is still an open question whether or not the textile industry can absorb such acrylic quantities—but sales manager Setterstrom's statements were clear notice that Dynel would give no quarter in claiming its share of whatever market develops.

A CONTINUED STORY BY ONE OF AMERICA'S OLDEST GLASS MANUFACTURERS

The Case of the Acid Carboy...

by GAYNER

CHAPTER TWELVE

There's a lot more than meets the eye in making glass acid carboys. For instance, comparatively few of the hundreds of industries who use Gayner Glass carboys know that precision grinding plays a big part in making them leak-proof and safe for carrying corrosive materials like C.P. acids.

And now it's time to meet Ross Scofield, one of Gayner's most skilled "glass artists". Ross has spent the last five years doing a single highly important operation—grinding the necks of Gayner Glass carboys to assure a tight closure giving maximum protection to chemically pure acids in containers ranging from 1 lb. to 200 lbs. in capacity. Just as Ross is a specialist in his line, so Gayner carboys are "specialists" in safe conveyance of corrosive, handle-with-care liquids.

There are many reasons why Gayner Glass carboys are the "preferred package" for heavy chemicals, drugs, pharmaceuticals, juices, wines and extracts. They are toughened by thorough annealing. They offer greatest strength, service and economy—are easiest to clean and safest for re-use time after time. They are resistant to corrosion and chemical attack—no pores or pits to hold or absorb water or chemicals. Their light weight assures low shipping costs.

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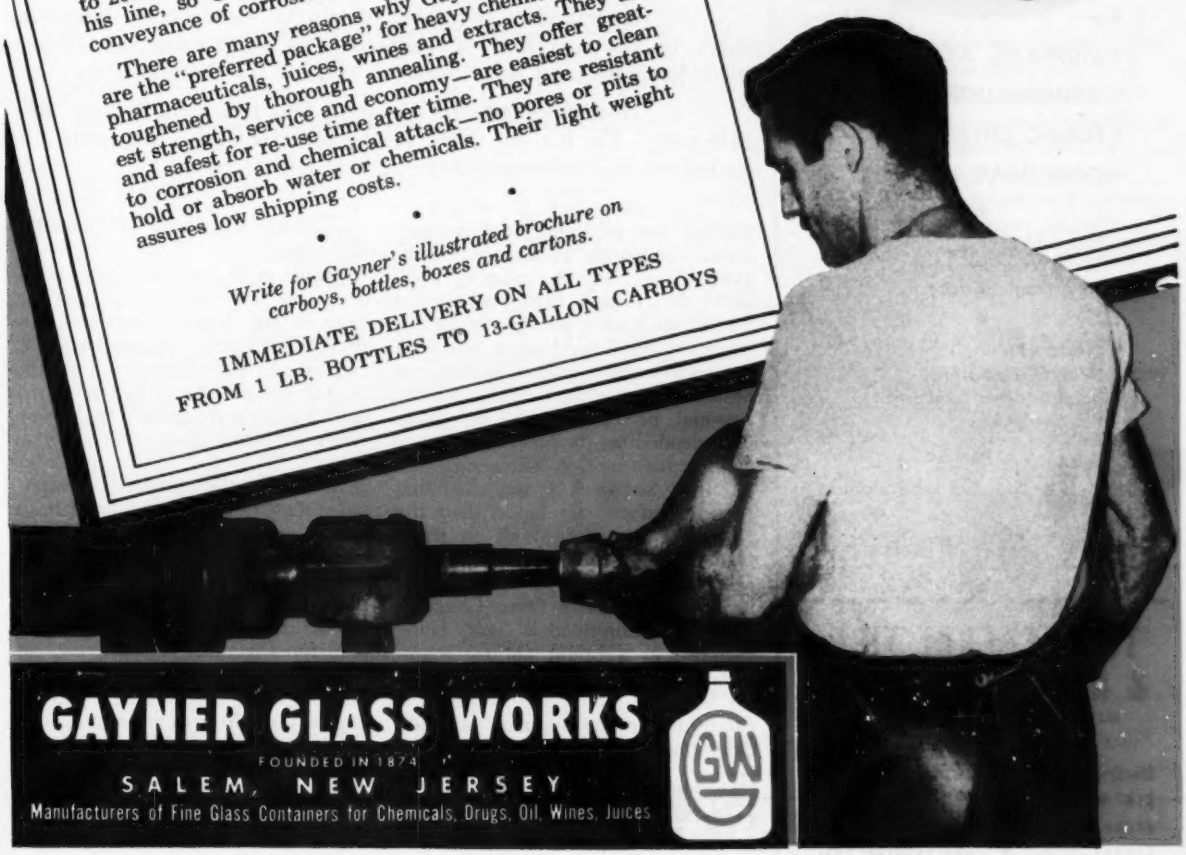

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Battle of the Bacteriostats

Germicidal personal products—with the promotion pitch on the corollary characteristic of body odor reduction—have been boomed into lucrative market for disinfectants.

Hexachlorophene has held the top spot for the past few years, but it's due for a major joust with an antiseptic sold under the trade names Actamer and Lorothiodol.

Seldom has anything been so parlayed into profits as human perspiration. Ever since the phrase "body odor" was coined, honest sweat has carried the load of selling some of the major brands of hand soaps. And with the introduction of the bacteriostat hexachlorophene* has come a host of personal products—soaps, shampoos, stick deodorants—to further capitalize on America's fear of "offending."

But by last week, it was clear that hexachlorophene no longer had the soap disinfectant field all to itself. Under a heavy promotion barrage from marketing-wise Monsanto, Actamer** (which Hilton Davis Chemical Co. calls Lorothiodol) was being plumped as a bright bet for soaps.

And with the increasing publicity for Actamer has come a renewed campaign by the supplier of hexachlorophene, (trade-named G-11) Sindar Corp., a division of Givaudan-Delawanna Inc.

Matter of Price: Prime point of the Monsanto talk for its Actamer has been in the matter of price. At the development price, Actamer costs $2 per pound, flat; there is no royalty. It's the St. Louis firm's contention that at this current price, use of Actamer saves the soap maker one third on costs.

Sindar, on the other hand, emphasizes that G-11 is the first proven antiseptic and deodorant for soaps, but has not lately cut its price. (G-11 is about $2.20 per pound; there have been reductions in price since its introduction. Royalties are paid only on soap formulations.)

Chloro-phenols Both: Chlorinated phenols have been under investigation as possible soap antiseptics for a number of years. Compounds such as 2,2′-dihydroxy-3,5-3′, 5′-tetrachlorodiphenyl and 2,2′-dihydroxy -3, 5,6-3′,5′ 6′ -hexachloro diphenyl methane have shown enough value to be pat-

* Hexachlorophene is the American Medical Assn's generic term for 2,2′-methylenebis (3,4, 6-trichorophenol).
** Both trade names for a compound 2,2′-thiobis (4,6-dichlorophenol).

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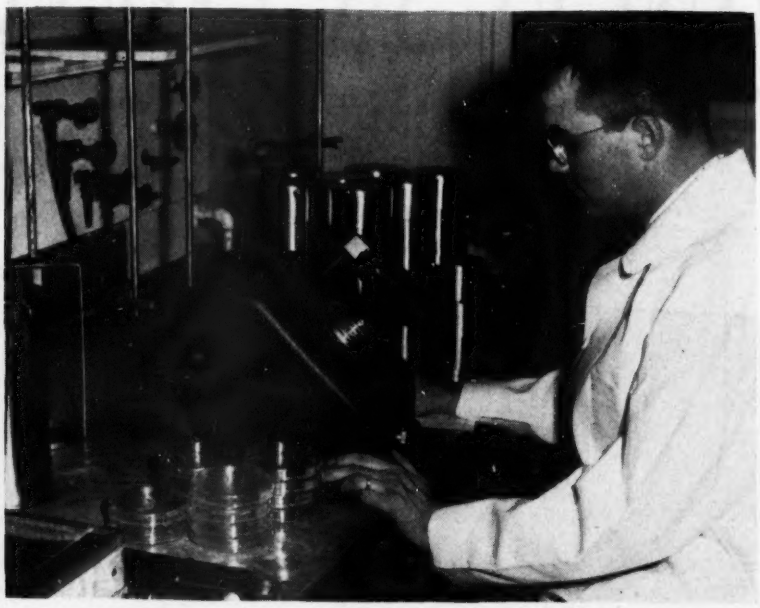

GERM COUNT: For a population drop, chlorinated phenols.

ented. However, W. S. Gump of Sindar decided that hexachlorophene (his discovery as a bacteriostat) looked like the top performer of the products he tried as disinfectants.

Other workers have toyed around with chlorinated diphenyls, too, and by late last year both Hilton Davis and Monsanto decided to market as a degermer a diphenyl that had been around for a number of years.

To qualify as a top grade skin bacteriostat, a compound must have:

- germ killing effectiveness, particularly in combination with soap.
- good adherence to the skin; compound should not wash off.
- little or no toxicity.
- good esthetic properties—have an odor that combines easily with perfumes or can be masked, and not discolor the skin. (Neither G-11 nor Actamer permits a pure white soap.)
- no sensitizing effects on skin.
- a low cost.

G-11's record as an effective, nontoxic, non-sensitizing antiseptic has been hard to beat. Monsanto has made a good point in its lower price on Actamer, for in recent months Dial soap has been sale priced in some areas to boost turnover. And in addition to a price advantage, Monsanto claims Actamer clings to the skin more effectively.

Product Parade: But the new bacteriostat still has to go a long way to overcome the advantage hexachlorophene has built up with manufacturers. Current applications of the G-11 include creams and lotions, deodorant colognes, creams, and sticks, aftershave lotions, deodorant and antiseptic foot powders, and baby products, in addition to shaving creams, shampoos, and soaps. At the present time, there are close to 300 makers of products which incorporate hexachlorophene.

And right now, only a handful of products have employed Actamer on commercial scale. This includes the deodorant soap Fresh, (Pharmacraft), Marvelous Shampoo (Richard Hudnut), and Dainty soap (Rexall).

Easy Add: The incorporation of these antiseptics has not proved difficult. Both G-11 and Actamer are virtually insoluble in water: to put them in a soap bar, usually a slurry of the compound is prepared and added to the soap in the crutcher. To add them to liquid soaps, they are ordinarily dissolved in acetone, or similar solvent, and metered in. The recommended concentrations for both products is about 2% of the soap weight.

Included in the literature available from Sindar are formulations utilizing G-11 in a variety of products. Synthetic detergents, in addition to soaps, are suggested uses. In products of this nature, sufficient bacteriostat is added to give a skin-contacting concentration of 0.1-0.2%.

Right now, they're battling for the personal deodorant soap field. But neither is overlooking the medical soap applications; chances are the bacteriostat battle is just beginning.

MIBK

The No. 1 medium-boiling solvent for nitrocellulose lacquers . . . for vinyl lacquers

For over-all performance and economy in lacquer formulation there is no substitute for methyl isobutyl ketone, because only MIBK has the solvent characteristics which permit formulating at top diluent content or top solids concentration.

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MIBK is one of Shell's *quality* solvents which include among others MEK, MIBK, and IPA. Your Shell Chemical representative will be happy to discuss with you in detail the advantages to be gained from using MIBK in your lacquer formulations. Just phone or write.

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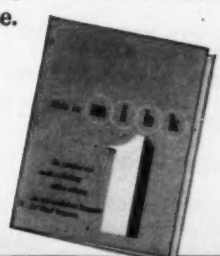

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SPECIALTIES . . . .

Fungicide Quartet

Phenylphenate fungicide-germicides* are going commercial. By-Products Processing Laboratories, Inc. (Long Island City, N.Y.) is now offering its Phenamins to formulators, is giving the biggest boost to its metal-containing Phenamin Copper and Phenamin Zinc.

With these new antifungal agents, By-Products Processing thinks it has a product that will give copper-8-quinolinolate a run for its money—or as By-Product's Max Stifel puts it, a run for less money.

That's because, he claims, the top advantage of Phenamin Copper is that it offers protection comparable to copper-8 at a quarter of the cost. Copper-8 has been setting the pace for mold preventives; it's passed the severest military tests, but its chief drawback has been price.

Although the Quartermaster Corps is still testing Phenamin Copper, By-Products offers other trial data to show its product will out-perform copper-8 (solubilized and dispersed forms) in two- and three-week soil burial tests; says another advantage is pastel blue coloration its compound imparts, as against the brown or greenish yellow of copper-8.

(Makers of the copper-8 don't seem too impressed, say nothing can match the copper-8's results in burial tests up to 108 days. And they express doubt concerning the color advantage, too.)

Fit the Job: But fungus preventives as effective as copper-8 or Phenamin Copper aren't required in many applications. For less severe conditions, By-Products is offering its earlier introduced Phenamin Special and Phenamin Technical (*CW, Dec. 20, '51*).

For applications like kraft paper manufacture, the Phenamin Zinc (somewhat less effective than the Copper) is offered. For mildew-proofing textiles for cotton shoe linings, for anti-athelete foot formulations, the Technical is suggested, and for uses where virtually nontoxic, odorless, colorless, water-insoluble antimold agents are required, the Phenamin Special is available.

The value of fungus preventives has become apparent to manufacturers only in the past few years. But, as pointed out in a recent address by Charles C. Yeager to the Midwest Section of the American Assn. of Textiles Colorists and Chemists, they are be-

* Tetradecylamine-*ortho*-phenylphenate (Phenamin Special); alkylamine-*ortho*-phenylphenate (Phenamin Technical); alkylamine-*ortho*-phenylphenate of copper (Phenamin Copper); and alkylamine-*ortho*-phenylphenate (Phenamin Zinc).

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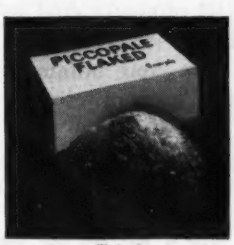

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FOR EXAMPLE:

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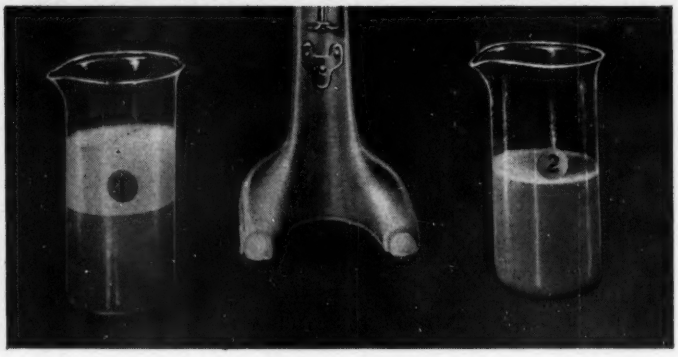
means better paper, and a host of other better products



TOP: Sample is submitted to high speed agitation to determine tendency of a system to foam. BOTTOM: Beaker #1 shows a foamy system after 30 seconds high speed agitation. Beaker #2 shows the *same* system, also after 30 seconds high speed agitation, but with a Nopco defoamer added.

In paper making, the presence of foam at any particular stage of manufacture retards operations, and the foam bubbles produce "thin spots" which result in paper with poor surface characteristics. Excessive foam may even cause the fiber "web," traveling along the paper machine, to break completely—thus wasting time and materials.

Application of a Nopco* defoamer eliminates foam conditions within a matter of minutes, regardless of how great the volume or speed of pulp or paper production may be.

Not only in paper making, but in a great variety of manufacturing and processing operations, such as production of yeast, beet sugar, glue, and latex paints, development of foam is both troublesome and injurious to the quality of the end-product. If you have to combat undesirable foam conditions, consult with us. We feel confident that one of Nopco's highly effective, "bubble busting" defoamers will solve your problem successfully.

Nopco's specifically developed chemicals, you'll find, offer nothing less than a better way of achieving better products. And we'll be glad to work with you closely—in your own plant, if you wish—to make sure you obtain the most advantageous results as economically as possible.

Other Outstanding NOPCO Processing Chemicals include:

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NOPCO EVOLVED THRU RESEARCH

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coming important as sales promotion tools.

Yeager brought out five important advantages that the mold-treated products have over nontreated fabrics:

- The life of the textile is increased. That the public is aware of the antifungal's value was shown by the fact that treated awnings outsold untreated four to one, although they were 20% higher in price.
- Treated products are cleaner—and sanitation-conscious householders are aware of this, too.
- Wear resistance is increased. Though related to the "longer life" point, it in particular means that treated products remain at full strength longer.
- Musty odors are prevented—another sales point with consumers.
- Staining is reduced, and the expense of stain removal (often with attendant fabric weakening) is cut.

Southland Special: That materials treated for fungus control will sell is emphasized also by the spritely sales of products designed to give the housewife a handy mildew-proofer.

One such home specialty is Vapor Products' (Orlando, Fla.) Mildewcide. Sold on a limited basis in Florida, a 4-oz. package of the product retails for 69¢. Mildewcide is put in closets where clothing is to be stored, and is said to prevent mold or mildew.

According to the label, the "100% active" ingredients are triomethylene and methyl salicylate (*sic*); a USDA source terms it a solidified formaldehyde-type product.

There's a big job for antifungal agents, from copper-8 to the Phenamins and Mildewcide. Both manufacturers and consumers are learning the value of products that give flight to fungus.

•

Corrosion Causes: Atmosphere, varying in severity as much as 500 times, is the leading cause of automobile corrosion, F. L. LaQue told Detroit engineers last week. The worst areas are those near the seashore and in heavily industrialized communities.

Main corrosive constituents of atmospheres are combustion products of various fuels, and salt particles blown in from the ocean. (LaQue pointed out that high humidity isn't particularly damaging in itself.)

The ordinary, one-coat underbody protection that an automobile maker gives his products isn't enough to halt corrosion in most areas. In cars not protected with mastic undercoatings, corrosion usually proceeds from the inner surfaces out.

Porcelain Proxy: Glidden Co.'s Industrial Sales Div. is now offering a modified silicone resin base finish claimed to have most of the desirable qualities of porcelain enamel, without its brittleness.

Trade named Nebulon, the new finish is suitable for range body sides, refrigerators and similar appliances. It costs about $9 gal., can be sprayed, dipped or flowed on—and one coat is said to do the trick—after which it is baked for about half an hour at 300 F.

In addition to giving porcelain competition, the new paint should find use in applications where galvanizing provides the top protective coat, since it has shown far more chemical resistance than the zinc coating. It's presently available in a number of colors.

•

No Spark: The chief consumer complaint about plastic upholstery material in wintertime is that it builds up static electricity. Chemists at the Chicopee Mfg. Co. (Springfield, Mass.) have worked out a plastic coating for Saran filaments that is claimed to give lasting freedom from the static electricity build-up.

•

Fact File: Hygroscopic agents, surface-active agents, and apparatus for their evaluation are listed in a new reference volume assembled by Atlas Powder Co. The book is available without charge from Atlas, Room 549, Wilmington 99, Del.

•

Dutch Buoy Paint: A line of marine paints and varnishes, developed in Holland and termed Epiphanes, are now offered in this country by the recently formed Epiphanes Marine Finish Co., Fairlawn, N. J.

•

Caveat Canine: The antirat program in Chicago, largely dependent upon the rodenticide Warfarin, has an additional angle: the head of Chicago's anti-cruelty society warns that there have been several cases of pet dogs having become poisoned by the Warfarin. He pointed out that prompt attention by a vet—employing vitamin K—will save the dogs.

•

Oyster Luster: Two new synthetic pearl pigments have been worked out by Shuman Chemical Products, Inc. (Cedar Grove, N. J.), for use on polyester resins and vinyl plastics. The new pigments are Chem-Scale and Nu-Scale, said to be the simplest processes yet available to produce a mother-of-pearl effect on these plastics.

•

Freons for Film: Du Pont's Freon 113, a fluorinated hydrocarbon has been tried as a cleaner for motion-picture film. Advantages: quicker, safer cleaning; the Freons are non-flammable and non-toxic, and effectively dissolve gums and oils that dirty the film. Addition of 0.1% beeswax or cetyl alcohol makes a satisfactory lubricant for films.

•

Anti-Amebiases: Abbott Laboratories (North Chicago, Ill.) has just introduced a new antibiotic designed to combat intestinal amebiases. The new product, Fumidil, is a direct acting antibiotic specific only against the microorganisms responsible for *E. histolytica;* other intestinal flora are unaffected, is is claimed.

•

Lacquer Net: Newest aerosol hair lacquer to get into national distribution is Gibbs & Co. (Chicago) Topper Liquid Hair Net. The 3½-oz. consumer size sells for $1; the 11-oz. professional size for $1.50.

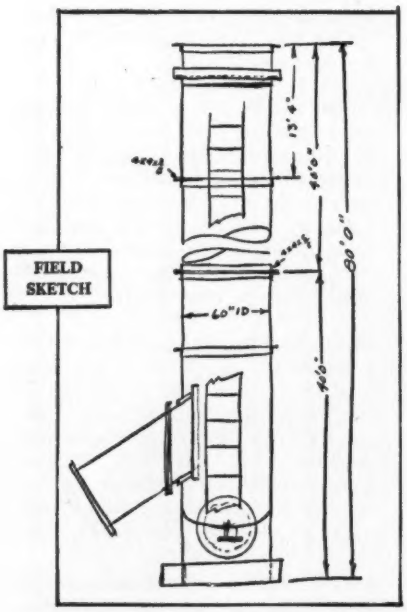
•

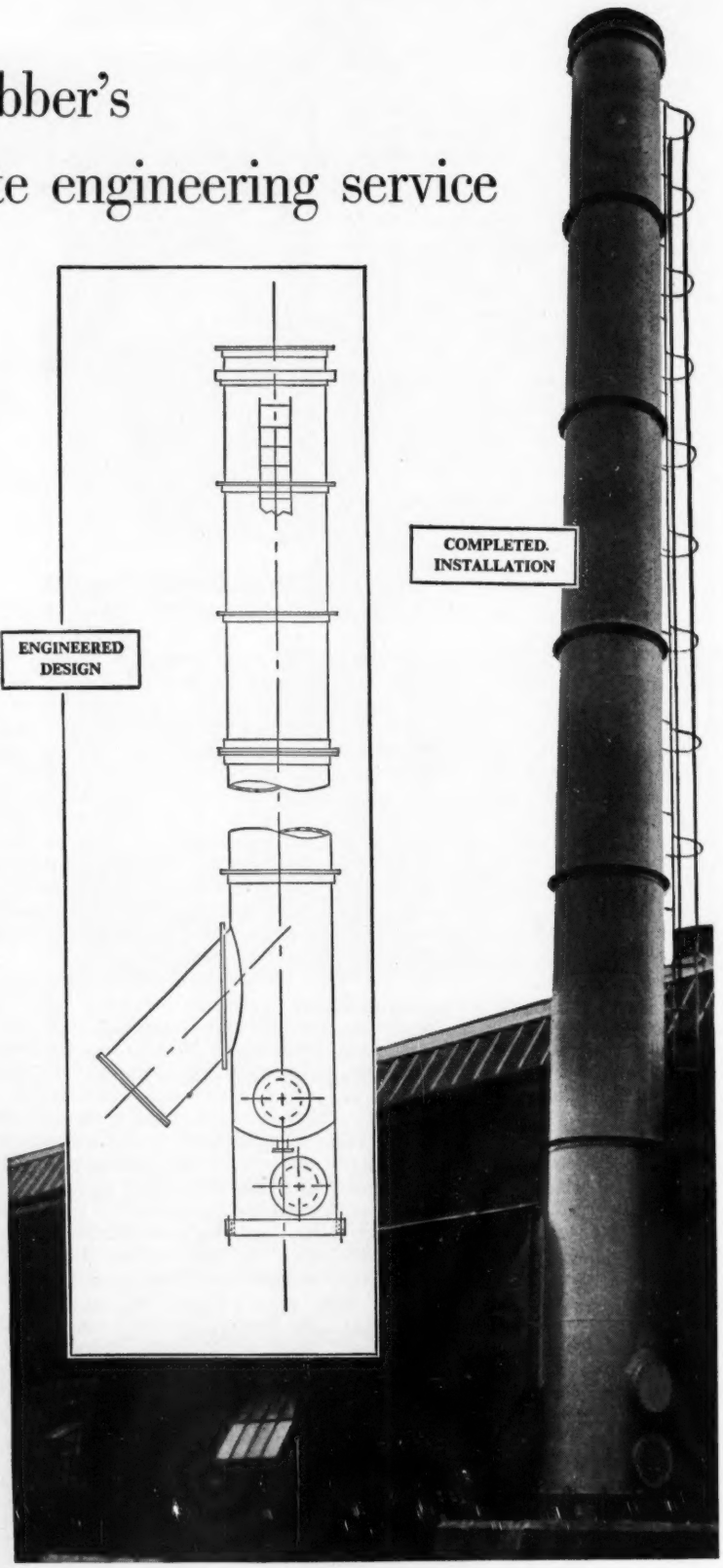
Second Skin: New, long-lasting skin protection is claimed for a skin cream just introduced by Abbott Laboratories (North Chicago, Ill.). Called Covicone Cream, the new product is said to offer a plastic-like barrier to soap and water for several days. It is initially applied twice daily; after 10 days, application every other day is said to provide the protective film.

Scratchless Snout

RUBBER GAS PUMP NOZZLE, called Mar-not, promises to end scratch of automobile finishes during refueling. No metal is in the flexible rubber nozzle, which is produced by the molded parts plant of Goodyear Tire & Rubber Co. Goodyear claims the new filler spout is unaffected by gasoline or other petroleum products, is sunproof and weather resistant.

How U. S. Rubber's complete engineering service combats corrosion





This steel mill was faced with the difficult problem of exhausting corrosive gases resulting from its pickling operations. A U.S. Rubber engineer was consulted, and he designed this rubber-lined steel stack. 80 feet high and 5 feet in diameter.

Fabricated, rubber lined and installed under his supervision, its successful operation serves as one more positive example of the complete engineering service available to industry to combat corrosion. Write to address below.

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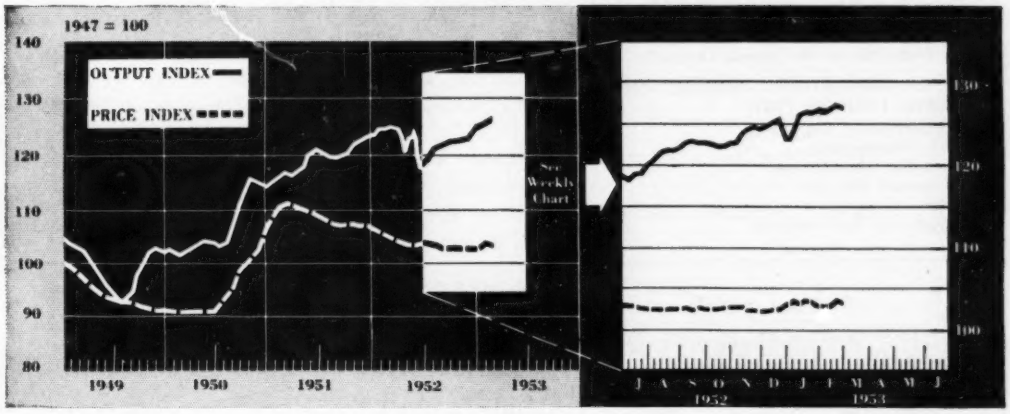
MARKETS . . . . . .



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

Copper sulfate jumped 1½¢/lb. following ceiling price removal. But present flurry in copper chemicals prices may soon subside.

Reason: expert opinion, totaling copper stocks, finds enough to go around to cover normal demands. So, unless Uncle Sam stockpiles too rapidly and pinches supply, watch for mark-downs later in the year.

Most chemicals have been selling under, but OPS has left ceilings—as of last week—on a long list of products.

Some of these still lidded: plastic materials, gum and wood products, fertilizers, essential oils, glue and gelatin, bone black, carbon black, lamp black, compressed and liquefied gases, insecticides and fungicides, miscellaneous industrial organic and inorganic chemicals.

Don't look for much coconut oil for awhile. Little copra is arriving for processing, aftermath of typhoon in Philippines last fall. Producers see higher prices, promise no relief until next year.

And closer to home, the Eldorado Oil Works strike at Bayonne, N.J., has temporarily choked off the meager local coconut oil supply.

The recently reported cyclohexane price change may be a drop for some consumers but it means a hop for others. Change from "delivered" to "FOB works" basis gives western users a price advantage.

One vendor will bow out of the cylcohexane market on April 1. Du Pont, according to a company spokesman, will use all it buys from then on, offer no more for sale.

Hormones are cheaper in Mexico. That's the behind-the-scenes cause of last week's plummeting progesterone, testosterone, etc., prices. And there's a good chance that cheaper below-the-border raw materials may push tags on the finished products still lower.

U. S. dyestuffs exporters may face some Canadian competition. Two companies—one German, one British—are now surveying eastern Canada for likely dye plant sites.

If and when a plant is set up, it will be the first Canadian dyestuff enterprise of any consequence.

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	126.5	126.5	125.4
CHEMICAL WEEK Wholesale Price Index (1947=100)	103.4	103.3	103.4
Bituminous Coal Production (daily average, 1,000 tons)	1,408.0	1,425.0	1,716.0
Steel Ingot Production (1,000 tons)	2,252.0	2,262.0	2,111.0
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.)	254.0	255.5	236.8

MONTHLY INDICATORS—PRODUCTION (Index 1947-49=100)	Latest Month	Preceding Month	Year Ago
All Manufacturing and Mining	237.	235.	221.
Durable Manufactures	317.	314.	282.
Non-durable Manufactures	196.	193.	189.
All Chemical Products	310.	309.	301.
Industrial Chemicals	595.	599.	562.
Petroleum and Coal Products	292.	290.	281.

Last year's whopping 760-million-lb. ethylene glycol output is now augmented by new capacity. On stream March 6, Gulf Oil's new Port Arthur, Tex., ethylene plant, will be source of 54 million lbs. of ethylene glycol annually as one of its end products.

Phosphate rock prices rose to a new level last week. And suppliers aren't expecting them to drop for a long time to come.

Reason: The market's been getting tight; with rising triple superphosphate activity, signs are rock will be scarce for at least another year.

Demand for ammonium sulfate, while heavy, will continue to be met, promise producers. The U. S. Steel (Fairless) plant output is expected to bolster supplies.

Current price outlook: Up $4/ton last December, today's tags may be expected to hold for a while.

If potassium carbonate demand is any criterion, television tube production may now be running a notch off top speed. Producers agree that glass plant demand, while continuing good, has tapered off slightly.

From consumer to supplier—that's the net transformation in the petroleum industry effected by the until-recent sulfur shortage. The Petroleum Administration for Defense figures:

1951	tons used: 257,000;	tons recovered from gases: 230,000
1952	270,000;	290,000
1953 (est.)	282,000;	390,000
1954 (est.)	290,000;	500,000

Reasons for switch: improved conservation practices; 25 Government-aided sulfur recovery projects.

Plastic cabinets for window air conditioners is becoming a new major market. John L. Murphy, general manager of General Electric's plastic department foresees annual production of 450,000 cabinets within two years. Sales of 700,000 units in 1955 is his forecast. Last year, 325,000 units were sold.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending March 9, 1953

	Change	New Price		Change	New Price
UP					
Copper sulfate, cryst., 99%, bgs., c.l., wks., 100 lb.	$ 1.90	$10.85	Tallow, inedible, tanks, delv., special	.0025	.045
Menthol, Brazilian, cs.	.60	6.00	Triphenyl phosphate, bbls., c.l., frt. equalled	.02	.39
DOWN					
Quinine, N.F., cns., 100 oz. lots, oz.	.16	.54	Lead, metal pigs, prime, N.Y.	.005	.13

All prices per pound unless quantity is stated.

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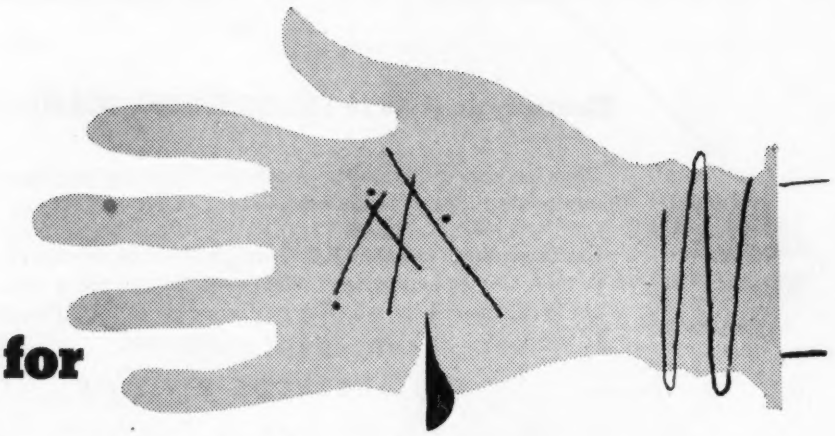

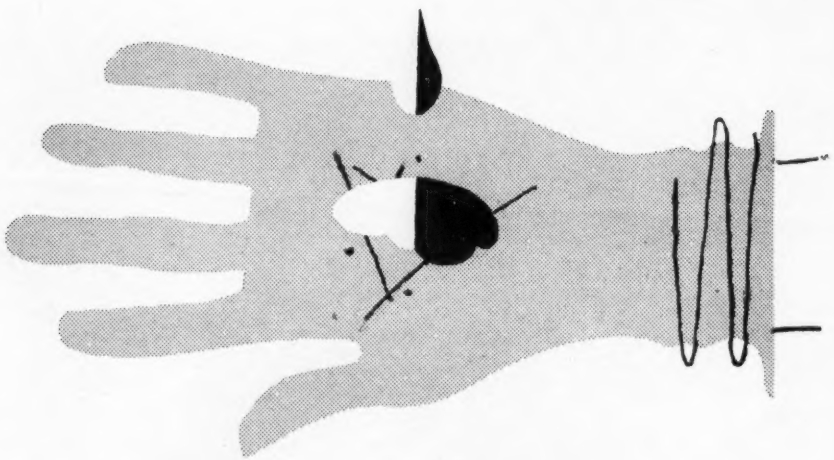

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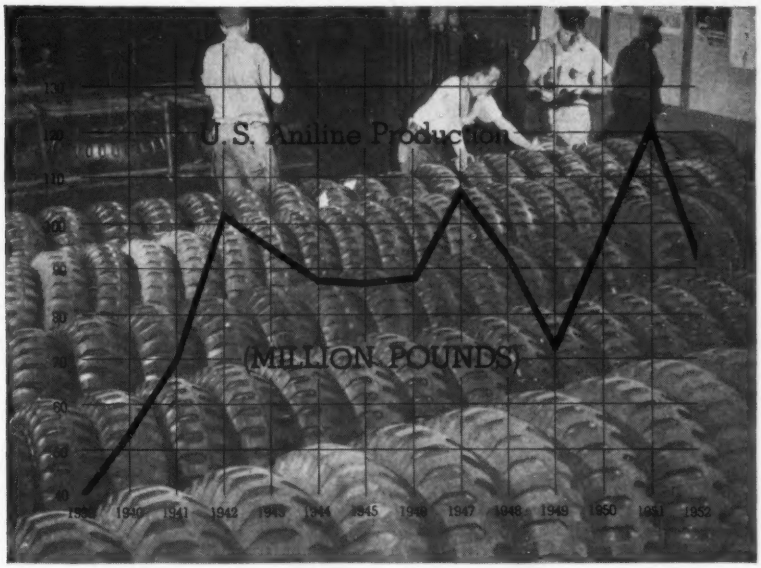

RUBBER TIRES: More cars, more wheels, more aniline.

Aniline Accelerates

Reopening of synthetic rubber plants hikes aniline-based accelerator and antioxidant requirements.

Resurgence in textiles, more veterinary medicines, rocket fuels add to swelling aniline market.

New plant will help ease pinch, balance rising demand.

Currently, biggest question in the rubber industry is the fate of the 28 government-owned synthetic rubber plants. With the Reconstruction Finance Corp., Congress, the Federal Trade Commission and private industry all sparring in the ring (*CW Newsletter, March 7*), ultimate terms of the disposal of the plants are far from settled.

On one aspect of the rubber industry future, almost everyone is in agreement; consumption, and therefore production, is destined to expand. This, of course, means more business for rubber chemical suppliers. And not the least of these are the aniline makers.

In 1952, the $4-billion (in sales) rubber industry spent $78 million on antioxidants and accelerators—130 million lbs. of them. Most of these compounds are derived from aniline.

Rubber Apron Strings: With the growth of the rubber tire business, so grows the consumption of aniline. Over the years, the tire makers have gradually reversed positions with the original top outlet for aniline, the dyes. Today, the aniline-rubber tie binds more closely than ever. The switch-over in emphasis looks like this:

Aniline Consumed by Dye and Rubber Industries

	Dyes	Rubber
	(percent of total consumption)	
1929	65	30
1940	38	49
1944	21.5	51.4
1952 (est.)	19.5	59

One unusual property of synthetic rubber has contributed significantly to the expanded use of aniline by the rubber industry: the man-made product requires about 40% more accelerator for vulcanization than natural rubber.

For the next few years, though, the lines of aniline usage pattern seem fairly well defined. Based on industry estimates for the period ahead, an end-use list might shape up as in the table on page 66.

For purposes of comparison, the Defense Production Authority's 1955 goal—now entirely filled—is an annual aniline capacity of 135 million lbs. This represents a 26% increase over

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Estimated Aniline Consumption in 1956

End Use	Millions of Pounds	% of total
Rubber Chemicals	80	61.5
Dyes and Intermediates	20	15.5
Drugs	5	3.7
Veterinary Pharmaceuticals	9	7.0
Photochemicals	3	2.3
Other	13	10.0
Total	130	100.0

the 106.4-million-lb. capacity of January, '51.

Then and Now: The aniline business has been "medium-size" for years. But it took World War II and the rubber industry to swell it to "giant-size."

Spurred on by a natural rubber supply shut-off, synthetic rubber production rode aniline output to a temporary high of 101 million lbs. in 1942; it's averaged close to 90 million ever since.

The only dip occurred in 1949. At that time two forces dragged aniline into a 30% slump:

- The general economic recession caused a drop-off in both rubber and textiles, the two biggest aniline takers.
- Synthetic rubber plant capacity was inactivated.

But, in contrast, this year promises to see another step-up. After a slight let-down in 1952, the climb is now resuming. Contributing to this resurgence are:

- Brighter prospects in textiles. Industry leaders are convinced last year's slump is over. Sparked by interest in the new synthetic fibers, an active period looms. Result: recovery in dye consumption.
- Of even more significance is the re-opening of all the synthetic rubber plants. Coincident with the proposed disposal of the plants, rubber demand has boomed lately. Auto industry estimates all point toward accelerated production.

Who'll Supply It?: Right now some aniline makers report they're in full production. Demand for chemical intermediates is especially brisk.

Because synthetic rubber flow has been turned on suddenly, the months ahead may bring a temporarily tighter aniline market. But the supply tightness should be of only short duration; in addition to the roster of older setups, National Aniline's new Moundsville, W. Va., plant (*CW Newsletter, June 21, '52*) is reported now in action, can be expected to close any supply-demand gap within a short time.

(The National Aniline plant, incidentally, marks the first departure from the old processes in over 20 years. Employing a continuous, vaporphase catalytic method, it is expected to be an importantly cheaper operation. In a field where capacity has usually exceeded supply, this factor gives it a base-rock foundation.)

Price Ahead: Even before the days of OPS, the price of aniline remained remarkably steady. For 17 years (1930 to 1947), manufacturers' tags ranged narrowly from 10 to 12¢/lb., gradually rising beginning in 1948.

Now with price decontrol wheels starting to turn, a mark-up for aniline looks certain. Long ceiled in the 17¢ range by OPS, it may bob up considerably.

Other Outlets: Although the rubber accelerators, antioxidants etc. are the mainstays of the aniline industry, other products are expected to add important outlets, expand present ones.

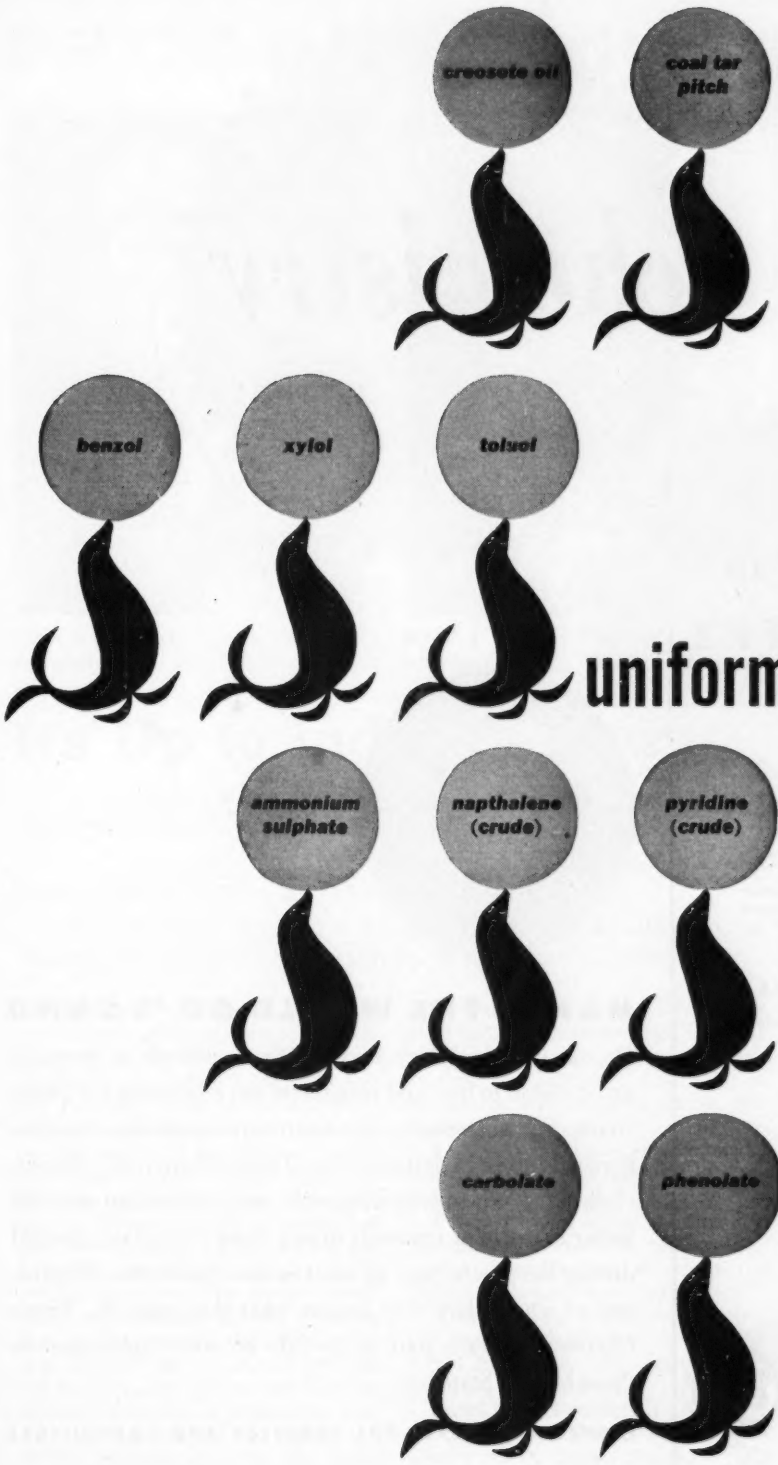
Two of the more promising:

- With an already sizable start, the sulfa drug consumption will expand significantly in the veterinary medicine field. Relatively untapped in the early days of the "sulfas," animal consumption has already overtaken human sulfa consumption.
- Another, more exciting application is a recently developed use in rocket fuel. Basicly an aniline-fuming nitric acid combination, this material is the object of considerable military interest.

Over-all Look: Right now, the details of the future aniline picture are a bit unsettled; effects of present factors, evaluated quantitatively, cannot be pinned down to the last pound.

But out of the agitation of burgeoning demands vs. boosted production, these broad lines appear defined:

- With the rubber tire manufacturers taking the lead, new and expanded demands add up to a permanently higher rate of activity in aniline.
- Once the current demand hump is passed, the industry is expected to proceed in a state of capacity-consumption balance rarely achieved in recent years.
- Barring sudden military emergency demands, the prospect is healthy growth.



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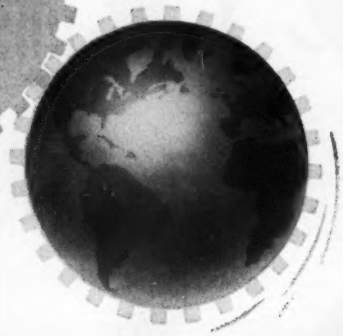

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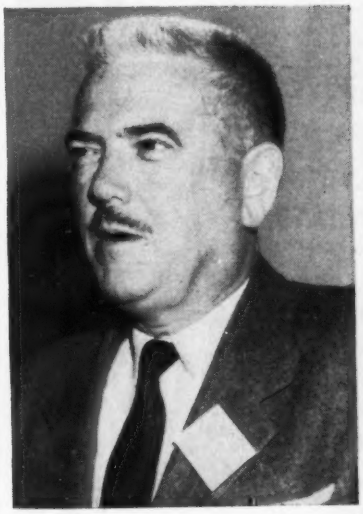
PRODUCTION . . .

DOW'S BOUNDY: Time to re-examine, re-evaluate.



JOHN J. PHAIR: Time for doctors to catch up.

It's Up to Industry Now

Detroit was the home team for M.C.A.'s latest air pollution conference, which focused on regional problems.

With stricter laws imminent, said Dow's Boundy, it's up to industry to take the initiative.

But the winning formula must weigh availability of equipment, ability of air to dilute, and of man to tolerate.

Problems were the keynote, but progress shared the spotlight at the M. C.A.'s ninth Air Pollution Abatement Conference in Detroit's Hotel Statler last fortnight. Most of the 187 first-day registrants focused their attention on discussions of four critical pollution areas—Detroit-Windsor (Canada), Houston, Louisville, and Chicago—their problems and the progress that has been made in dealing with them.

Setting the Pace: Dow's R. H. Boundy (member of the board and director of research) set the pace for the meeting when he said, "We recognize air pollution as an old problem for our industry, but as one that has assumed conspicuous importance during the last five or six years . . . While material progress has been made, the present is a desirable time to re-examine, re-evaluate and make plans for better control in the future."

Boundy sees an increasing awareness of air pollution among the public, particularly in the large industrial centers. And since the subject directly involves both industry and the public, "some coordination of the solution will be arrived at through governmental agencies. There will probably be statutory regulations."

It's squarely up to industry, then, to take the initiative. And this, as Boundy sees it, revolves around five fundamental points:

- Design and location of plants so that pollution does not become excessive.
- A search for more effective and economical methods of control.
- A sound program to inform the public "correctly and adequately."
- An interest to secure effective and equitable legislation.
- Cooperation and exchange of technical information.

Novel, Yet Familiar: Leading off on the regional discussions was Ben Linsky (Chief Smoke Inspector, Detroit) who spoke on the "novel, yet familiar" problem existing in the Detroit-Windsor area. It's novel, says Linsky, because it involves an international boundary, consequently international legal jurisdiction. It's familiar because the Detroit metropolitan area is an industrially heterogeneous, sprawling region made up of three counties and part of a fourth. All

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told, there are 119 communities, each of which has a local air pollution program.

The pollution problem there harks back many years, is attributed mostly to the ore boats plying Lake Erie. But other industrial sources of pollution run the gamut from fly ash through the heavy chemicals, pharmaceuticals, paints and varnishes. And a current study by the International Joint Commission is aimed at establishing the source and nature of the pollution, as well as basic correlations between pollution concentrations and their effects on health, corrosion, indigenous vegetation, etc.

The study should uncover scientific data that will prove useful both to Detroit and other regions. Linsky, however, is quick to point out that big strides in the fight against pollu-

DETROIT'S LINSKY: Dollars for equipment, not for law suits.

tion have already been made. To prove his point, he cites the $13-$14 million spent on pollution prevention equipment in the last 4½ years and the fly ash that is being collected at the rate of 140,000 tons/yr.—within the city limits of Detroit. And a dollar spent on equipment, warns Lansky, buys more lasting, tangible results than a dollar spent in court for defense against law suits.

Old and Familiar: Like Detroit, Louisville has a pollution problem that goes back many years. In fact, said Du Pont's E. Neil Helmers, the problem was recognized as early as 1873. Things didn't come to a head, however, until World War II, when the government's need for synthetic rubber fostered the city's famous "Rubbertown."

New state legislation was passed

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Weekly costs $	12,480	22,464
Weekly Prod. lbs./per kettle	48,000	93,600
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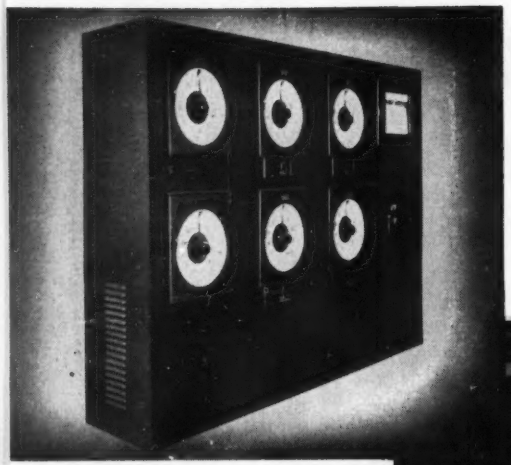

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last March and the chemical industry is beginning to feel its effects. Last month (*CW, Feb. 21*), for instance, two Louisville alderman swore out a warrant for National Carbide, claiming it was violating the new law. Now the firm has until March 20 to show cause why it should not shut down its carbide furnaces.

But also like Detroit, Louisville figures it has made headway against pollution. Nine out of the 11 Rubbertown industries have combined to ante up $50,000 for a study which Battelle Memorial Institute, working with Jefferson County Air Pollution Control officials, is undertaking. Battelle, which started last June, is still in the process of sampling and analyzing the atmosphere, will make the results public when the study is completed.

Says Helmers: "Much has been done, and while the survey cannot be expected to solve the whole problem, it will provide better understanding and point to corrective action by industry and the community . . . The problem is complex and will require time . . ."

DU PONT'S HELMER: Much accomplished, more to be done.

Police Yourselves: Don Wynn, manager of the industrial department of Houston's Chamber of Commerce, lost little time in plugging his favorite city (Houston) in his favorite county (Harris) in his favorite state (Texas). With justifiable pride, he points to the "$2.2 billion investment in 100 plants with 66,000 workers and a payroll of $278 million within a little more than a decade" in Houston.

One result of this growth has been a public uproar against air pollution that has been rising with a steady

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PRODUCTION . . . . . .

crescendo since late 1951. As yet no plant has been served with an injunction or a law suit, but keeping out of court has been an uphill struggle. He adds that since 1947, industry in Harris County has spent $8 million on antipollution equipment, has authorized another $4 million.

Wynn's formula is the same as that which Houston companies have adopted with some success in the case of stream pollution: "Police yourselves, then tell the public what you've done."

Chicago, on the other hand, is just beginning to realize it has a pollution problem, said Armour Research Foundation's W. C. McCrone. Although Chicago is geographically and meteorologically similar to Detroit, the problem there is settled dust and smoke rather than smog. And although McCrone thinks that industry, in general, is not the biggest contributor,

TEXAN WYNN: Police yourselves, then tell the public.

MAPPA (Midwest Air Pollution Prevention Assn.) is currently conducting an investigation to identify the sources.

Three-Way Compromise: In a later session of the M.C.A. conference, another important aspect of the subject came up for discussion when John J. Phair, professor of preventive medicine and industrial health at the University of Cincinnati's College of Medicine, spoke on human ability to withstand airborne contaminants. Phair, a former health officer (in Louisville) and a leading authority in the field, freely admits that chemists and engineers with their precise qualitative and quantitative measurements of pollutants have far outpaced the doctors who must correlate them with their effects on human health. So little is known on that score that Phair is conducting a study—not on the relationships, but on how to study the relationships.

Clean air, says Phair, is a matter of degree, and the goal can't be the complete elimination of pollutants but to find the proper tolerance of humans for particular pollutants. The problem isn't simple, for data from the disasters that have been recorded (Donora, the Meuse Valley, London) indicate that no single pollutant is the culprit but that they have a synergistic effect on each other.

In the final analysis, the successful formula for any air pollution program contains three variables: availability of equipment to trap pollutants, ability of the air to dilute them, and ability of man to tolerate them.

EQUIPMENT . . . .

A-Department: Westinghouse Electric Corp. (Pittsburgh) just created a new Atomic Equipment Dept., in its Atomic Power Div., to handle a newly planned, multimillion-dollar atomic equipment plant.

•

Formed for Fire: Armour Research Foundation of Illinois Institute of Technology (Chicago) just organized a fire protection and safety research group for service to Midwest industry. Purpose of the group: (1) to prevent fires or explosions; (2) to stop fires from spreading; (3) to provide for rapid detection and (4) extinction of fires; and (5) to prevent accidents.

•

Branch Plant: Lindberg Engineering Co. (Chicago) will open a new West Coast plant in Downey, Calif.

•

Plastic Preview: American Agile Corp. (Bedford, Ohio) will market a corrosion-resistant tank made of unplasticized polyvinyl chloride.

•Kraloy Plastic Pipe Co. (Los Angeles) is bringing forth a rigid vinyl plastic pipe, D-500, in sizes ½-4 in. Claimed to be capable of handling corrosive chemicals at 500 psi and 77 F, the pipe will be available with all necessary molded fittings.

•

More Motors: Robbins & Myers, Inc. (Springfield, Ohio) will soon start producing motors for chemical plants. This new line will be available with 1 to 40 hp ratings in enclosed, explosion-proof casings.

•

For Circuits: General Electric Co.'s Switchgear Dept. (Philadelphia) is now offering a new line of low-voltage drawout switchgear. For 600 volts ac and less, the switchgear has standardized compartmental con-

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PRODUCTION . . . . .

struction and new air circuit breakers.

•

And for Automation: At the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy last week, Bausch & Lomb Optical Co. (Rochester, N.Y.) unwrapped its new Littrow-Echelle spectrograph. Tagged at $16,500 and heralded as "revolutionary," the instrument embodies the echelle, the third major development in light dispersion elements in the last 300 years. (First two: the prism and the diffraction grating.) Devised by MIT's George R. Harrison, the echelle is a ½"x3"x5" optically flat glass plate with 200 grooves to the inch. Said to have 10 times the dispersion power and twice the resolving power of a diffraction grating, the new spectrograph is also claimed to provide fast qualitative and quantitative analyses for industrial work involving substances present in only one part per million or less.

• Minneapolis-Honeywell Regulator Co. (Philadelphia) is developing an adjustable-ratio relay for automatic control of cascade ratio systems where a large flow of valuable product must be handled. The device is a self-contained, pneumatically set multiplier that automatically controls the output of two components in order to obtain the desired proportions in the final product. Expected applications: to various combinations of temperature, pressure, flow rate, pH, viscosity, density and liquid level in chemical processes where measurements can be changed into pneumatic signals.

• At the recent New York Conference of the Instrument Society of America (New York), Robert Stern of Taller & Cooper, Inc. (New York), talked of the latest developments in process instrumentation. He pointed out that it was now possible for supervisors to receive directly in printed form important production and performance data from eight different plants as far as 400 miles away from a central control station.

•

First in Line: Oxy-Catalyst, Inc. (Wayne, Pa.) recently appointed Pittsburgh's Dravo Corp. as the first sales and engineering representative for its Oxycat, an air pollution-control and heat-recovery device.

•

Stair Climber: Automatic Bending Co. (Harvey, Ill.) just augmented its line of hand trucks with the E-Z Climb, a stair-climbing, two-wheel utility hand truck with two aluminum rocker shoes that function like an extra pair of wheels when moving up or down stairs.

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- **Electropolishing of Aluminum**—to produce mirror-like surfaces such as those on light reflectors.
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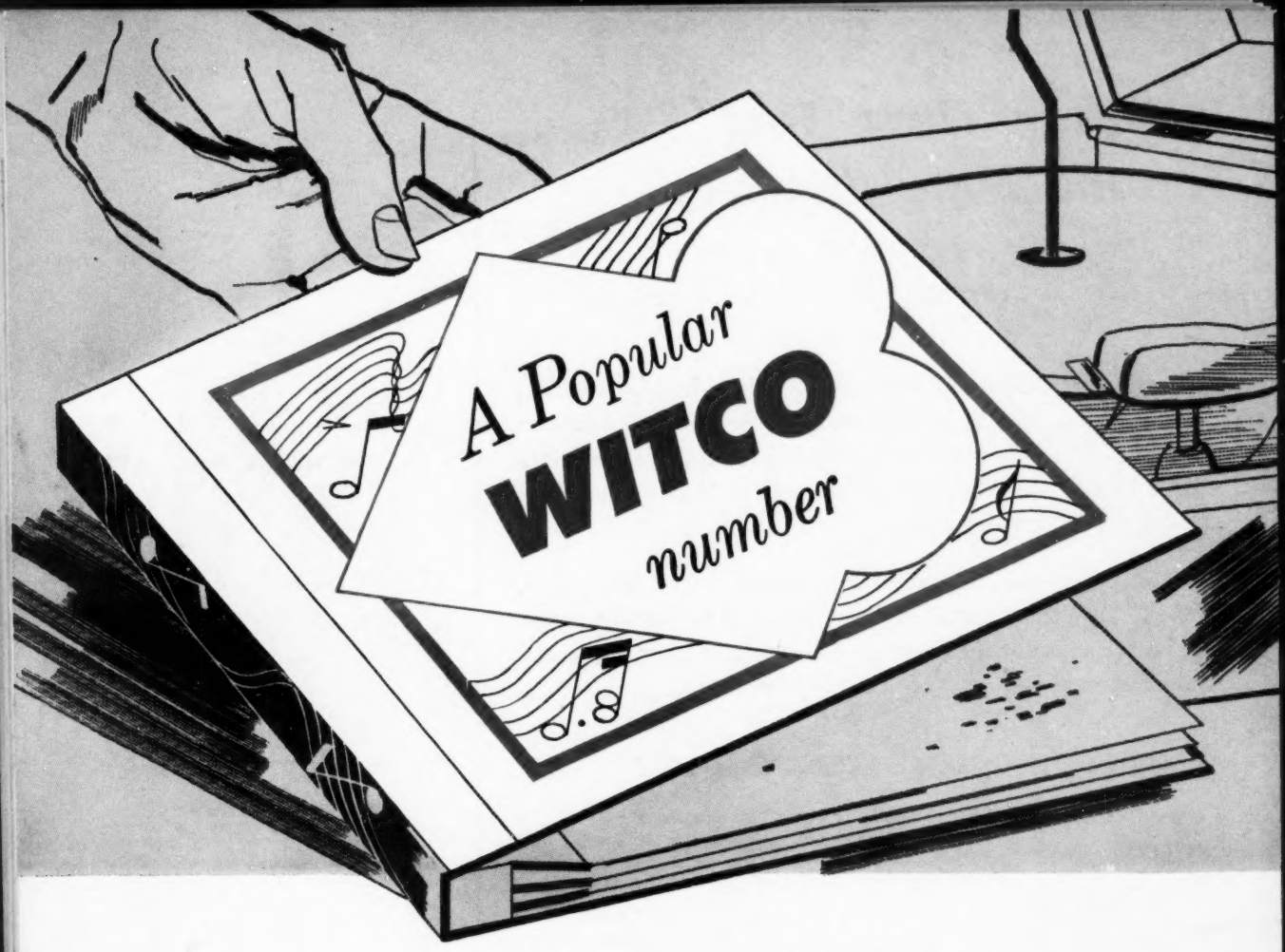

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